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ABSTRACT

Instructions are given for teaching severely physically and/or neurologically handicapped students to use the 14-key Cybertype man-machine communications system, an electric writing machine with a simplified keyboard to enable persons with limited motor ability or coordination to communicate in written form. Explained are the various possible configurations of Cybertype interfaces or keyboards, and the codes which identify the letters, symbols, and typewriter functions of the different keying positions. A set of 15 lessons for Cybertype instruction are presented, together with training exercises, tests, and supplementary instructional materials (practice exercises to augment the regular lesson plans). Typewriting exercises include practice in such activities as copying of commonly used words and sentences emphasizing certain letters, creative writing, language building, numbers and math symbols, and integrating letters, punctuation, and numerals. (See also EC 030 060, EC 050 266-050 267, EC 050 269-050 270.) (KW)

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C/R/I Final Report

Project No. 18-2003 and 7-0533
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STUDY OF MAN-MACHINE COMMUNICATIONS SYSTEMS FOR DISABLED PERSONS (THE HANDICAPPED)

VOLUME V

HAIG KAFAFIAN

CYBERNETICS RESEARCH INSTITUTE
2233 WISCONSIN AVENUE, N.W.
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June 19, 1971

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION
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C/R/I FINAL REPORT

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EXPERIMENTAL INSTRUCTIONAL MATERIALS FOR C/R/I FIELD CENTERS

Volume V

HAIG KAFAFIAN

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INSTRUCTION MANUAL FOR 14-KEY "CYBERTYPE" MAN-MACHINE COMMUNICATIONS SYSTEM

First Edition

This volume together with those listed below comprise the series of reports, demonstration guides, evaluative procedures, and instructional and training materials prepared under Project Nos. 7-0533 and 18-2003, Grant No. OEG 2-7-070533-4237 (607), for the Bureau of Education for the Handicapped, Office of Education, Department of Health, Education, and Welfare.

C/R/I Interim Report, 1968	Interim
C/R/I Second Report, 1970	Volumes I and II
C/R/I Final Report, 1971	Volume III
C/R/I Demonstration Guide and Materials	Volume IV
C/R/I Instruction Manual for 14-Key "Cybertype" Man-Machine Communications System	Volume V
C/R/I Instruction Manual for 7-Key "Cybertype" Man-Machine Communications System	Volume VI
C/R/I Instruction Manual for a "Cybertype" Tongue-Body Interface Man-Machine Communications System	Volume VII

A master errata sheet will be compiled from these volumes, and sent to their recipients. Your suggestions and help will make the experimental volumes more useful to researchers, teachers, and other readers, and will be of great value in preparing any revisions.

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PREFACE

INSTRUCTION MANUAL FOR

CYBERTYPE® MAN-MACHINE COMMUNICATIONS SYSTEM

14-KEY INTERFACES

This first edition of the instruction manual for the 14-key "Cybertype" interfaces was designed as a guide for introducing the keying-codes and experimental teaching programs to researchers and teachers at the C/R/I Field Centers working with severely physically and/or neurologically handicapped students who have the cognitive resources to learn, who know the English alphabet, and who have comprehension of word formation and sentence structure.

The introductory section includes, among others, descriptions of various types and configurations of "Cybertype" interfaces or "keyboards" and codes which assign letters, symbols, and typewriter functions to the keying positions of the interfaces. Illustrations of keying positions, and the organization of lesson plans are presented.

Lesson plans for Cybertype® instruction and a set of Supplementary Instruction Materials are also part of this Instruction Manual. The teacher is encouraged to modify the contents in order to meet the students' requirements. The format is straightforward and can be followed in the event changes are made.

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C/R/I INSTRUCTION MANUAL FOR CYBERTYPE™ COMMUNICATIONS SYSTEMS*

INTRODUCTION

Physically handicapped children and children with neurological dysfunctions are often unable to provide the muscular coordination and dexterity necessary to communicate in written form, either by handwriting or by operating the 49 keys of an ordinary electric typewriter. These handicaps especially when accompanied by language impairments and specific learning disabilities, severely impede further development of intellectual and verbal potentialities. As a result, many multiply handicapped individuals, especially children who potentially have the intellectual competence to become self-sufficient contributing members of society, are institutionalized because their motor capabilities appear too limited for independent and practical functioning.

In spite of the apparent hopelessness of many children with multiple handicaps, it has been demonstrated that it is often possible to employ cybernetic systems which permit use of the individual's remaining motor capabilities.

Cybernetics Research Institute (C/R/I) is presently conducting research for the purpose of studying severely disabled students' ability to communicate by means of the CYBERCOM™ family of man-machine systems. Children who have the cognitive ability but whose other disabilities preclude cursive writing or operation of ordinary typewriters are being studied through observation and testing. Where possible, man-machine systems are provided to the students with interfaces which match the students' remaining performance characteristics, thereby enabling them to operate electric writing machines and/or other communication and control systems.

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*This Instruction Manual is intended for research purposes only, and is not intended to represent the final version which is in the process of being developed.

1. Kafafian, Haig. Study of Man-Machine Communications Systems for the Handicapped. U.S. Office of Education, Bureau of Education for the Handicapped, Project No. 7-0533, C/R/I Interim Report, August 19, 1968.
2. Kafafian, Haig. Study of Man-Machine Communications Systems for the Handicapped. U.S. Office of Education, Bureau of Education for the Handicapped, Project No. 18-2003, C/R/I Second Report, February 19, 1970.

The materials presented in the C/R/I Instruction Manual are also intended to serve the teacher of exceptional children as an introduction to a teaching guide for "Cybertype" man-machine communications systems, and provide them with an organized program of instruction for these systems together with appropriate training, testing and exercise materials. The C/R/I Manual is also intended for use as a guide in teaching children individually or in groups. Care should be taken in selections of the appropriate interface or "keyboard" and special instructional materials, if necessary. Substitute exercises and other special materials, if needed, should be determined by the teacher or researcher.

Description of Basic "Cybertype" Keyboards or Interfaces *

The basic characteristics underlying the "Cybertype" system involve the concept of "dual-input". That is, instead of requiring operation of one key at a time to produce typed letters, symbols, or functions, as with an ordinary typewriter keyboard, the "Cybertype" systems operate from dual-inputs which may be bilaterally or unilaterally controlled.

Two inputs must be provided, that is, two keys (or one key which serves the purpose of two keys) are operated at one time, or they may be operated in sequence. Although dual-input operation may seem unusual at first, as compared to single-input operation, dual-input systems offer the advantages of simplified keyboard arrangement and flexibility permitting interface matching to the performance characteristics of the human operator. Another advantage, and an important one, is that the

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*The term "interface" here refers to the keyboard or control mechanisms which are the point of contact between user and typewriter. In the case of an ordinary electric typewriter, the keys of the 49-key keyboard may be identified as the "interface". With a "Cybertype" system, which is for a typewriter or other office or computational machines, the 14-key, 7-key, or 2-key keyboards or single-key control, or other interface configurations constitute the interface.

keying code is easy to remember. With a little practice, the users do not have to refer to charts or marked keys once they have learned the code. Only two basic coding relationships are necessary to remember, e.g., 1 and 1 for the typewriter"space"function, 1 and 2 for the letter E, 1 and 3 for the letter T, 1 and 4 for the letter A, etc.

Interface Configurations

One configuration of the 14-key "Cybertype" keyboard interface consists of 14 finger or prostheses-operated keys, arranged in two groups of 7 keys each, as shown in Figure 1. Typically, key-tops on this type of interface are 1/2 x 1/2 inch in size, with a lateral separation between keys of one inch center-to-center. For purposes of identification, keys are numbered from 1 to 7 in right and left hand banks (See Figure 1). This numerical identification of keys should be remembered, since it will be referred to frequently in this Manual. Some keyboard interfaces include an ON/OFF toggle switch and pilot light, as shown in Figure 1.

The 14-key keyboard is electrically connected to an electric typewriter which provides the printed output. Each letter, symbol or function to be produced is assigned to a pair of keys, one key in each of the two banks.

In this configuration of the dual-input interface, two keys are operated together using a finger of the right hand for the keys identified as the "Function Keys" or the right bank of keys, and a finger of the left hand for the left bank identified as the "Control Keys." It has been found that many students who lack the manual coordination and dexterity necessary to strike individual keys on the 49-key interface of an ordinary typewriter, can, with little difficulty, strike pairs of keys on the 14-key, dual-input interface, using one finger of each hand, prostheses,or other parts of the body when, larger keyboards are used. The small area to be covered, the minimum number of keys on the interface, the large key-tops and spacing of keys, the ease of learning the keying positions, and the minimum coordination required, bilaterally or unilaterally, are all factors which may contribute to the ease with which the "Cybertype" can be operated by individuals who are physically and/or neurologically disabled,but who have the cognitive and sensory capabilities.

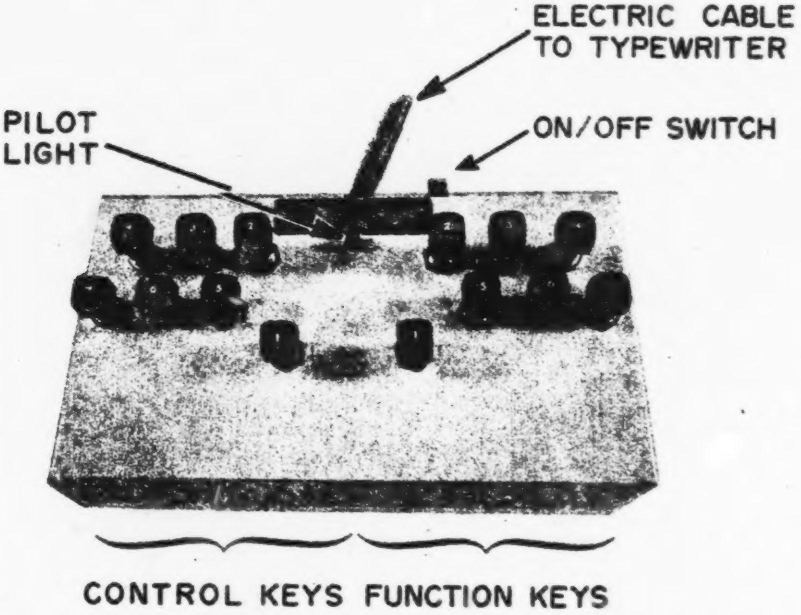
Interface Coding

The code assigning letters to pairs of keys of most of the interfaces is based on the frequencies of letter usage in the English language. Although various studies have revealed slight differences in letter frequencies, the "Cybertype" code described in this Manual is based on the following order of letters from most frequent to least frequent:

ETAONIRSHDCLMUFPYBGWVJKQZX

Figure 1

"Cybertype," 14-Key, Dual-Input Interface for Finger Operation


ELECTRIC CABLE TO TYPEWRITER
PILOT LIGHT
ON/OFF SWITCH
CONTROL KEYS
FUNCTION KEYS

For a right hand dominant individual, each of the six most frequently used letters (E-T-A-O-N-I) and the typewriter "space" function can be produced by activating one key on each side of the keyboard. As shown in Figure 2, these letters and functions are produced by activating Key No. 1 of the left bank of keys, combined with individual keys of the right bank. For identification and descriptive purposes as noted earlier, the seven keys on the left side of the interface are referred to as "Control Keys" and the seven keys of the right group are referred to as "Function Keys" (Figure 1).

The other letters and the "period" are assigned to the second, third, and fourth control keys on the left side of the interface, paired with "Function Keys" of the right-hand bank (Figure 2). Numerals, other symbols and typewriter functions are assigned to "Control Keys" 5, 6, and 7 (see Figure 3).

The assignment of certain typewriter symbols, such as "!" and "+" depends on the model of typewriter used with the "Cybertype." The code for numerals, symbols, and functions shown in Figure 3 applies to the IBM* "Selectric" typewriter with "Prestige Elite," "Courier," "Letter Gothic," or "Delegate" type styles. The code for the IBM Models C and D differ slightly.

Through the use of a "code-reversal junction box," which connects the interface(s) to a "cybertypewriter," the key assignments for left and right-hand key groups can be interchanged, for operation by a left-hand dominant individual.

This Instruction Manual is meant for right-hand dominant individuals, and the "Control Keys" on the left side of the interface and "Function Keys" on the right side should be "reversed" if the students are left-handed. Thus, for a left-hand dominant student, the teacher may use the "code-reversal junction box" in place of the usual junction box,thereby shifting the "Control Key" positions to the right side and the "Function Keys" to the left side of the "Cybertype" keyboard. It is important to note that no data is available at this time to support this reversal and teachers may be guided accordingly.

Other Interface Configurations

Interface configurations other than the 14-key, finger-operated keyboards are employed where they more effectively match the remaining performance capabilities of the individual. For example, many persons lack

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*Trademark - International Business Machines Corporation, Armonk, N. Y.

Figure 2

Keying Positions for Letters, Typewriter Space, and Period with the "Cybertype," 14-Key Interface

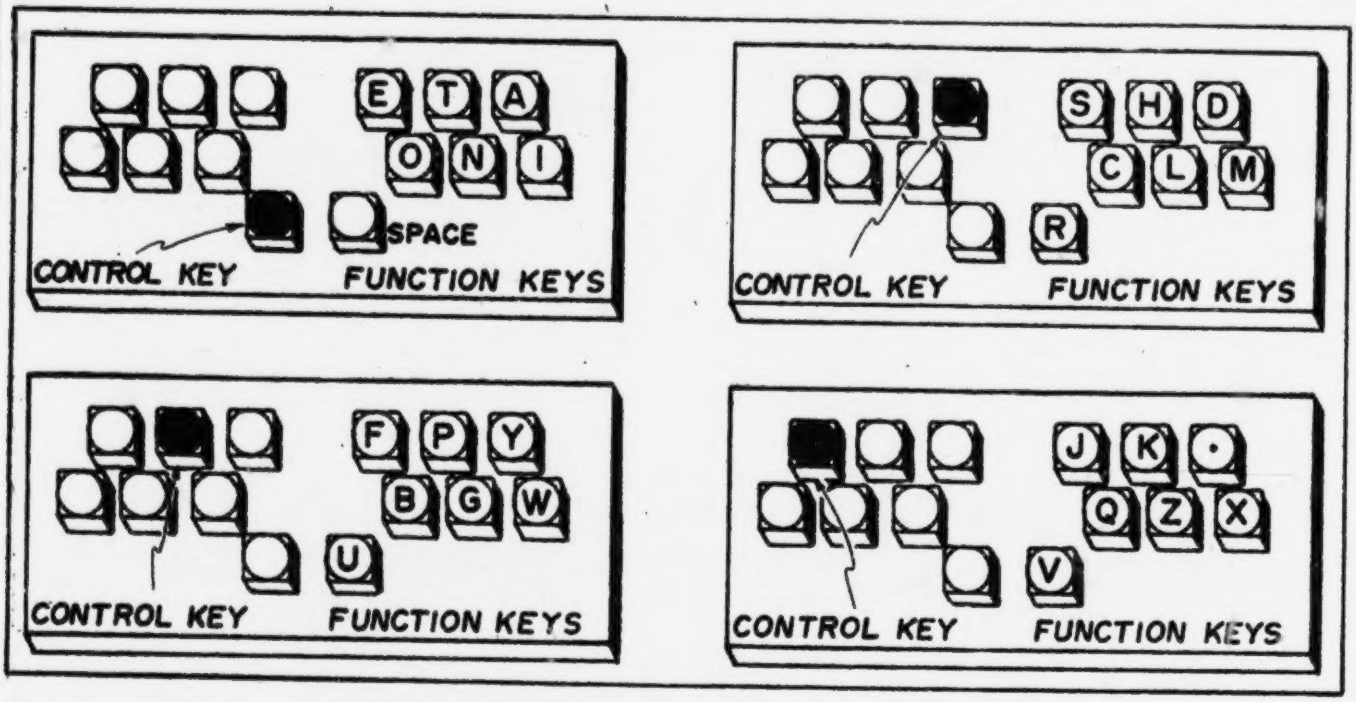
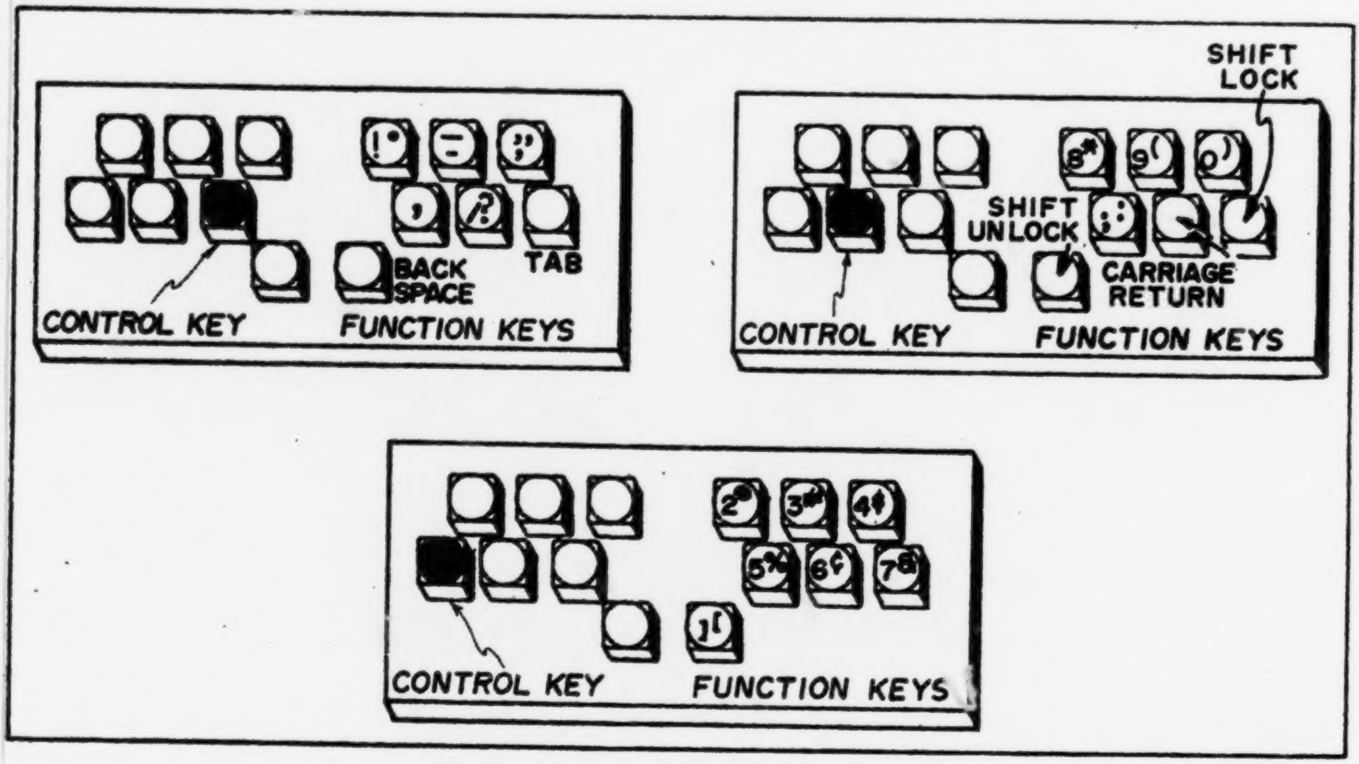

E
T
A
O
N
I
SPACE
CONTROL KEY
FUNCTION KEYS
S
H
D
C
L
M
R
CONTROL KEY
FUNCTION KEYS
F
P
Y
B
G
W
U
CONTROL KEY
FUNCTION KEYS
J
K
·
Q
Z
X
V
CONTROL KEY
FUNCTION KEYS

Figure 3

Keying Positions for Numbers,
Symbols, and Typewriter Functions
with the "Cybertype," 14-Key Interface


CONTROL KEY
FUNCTION KEYS
BACK SPACE
TAB
SHIFT LOCK
SHIFT UNLOCK
CARRIAGE RETURN
CONTROL KEY
FUNCTION KEYS
CONTROL KEY
FUNCTION KEYS

the coordination and dexterity necessary to operate keys with their fingers, but retain some control to provide gross motor coordination in hands and arms. They may be provided with "fist-controlled" interfaces, one configuration of which consists of 14 large keys with wide spacing,and key-tops with a diameter of one inch and a lateral separation between keys (center-to-center) of two and a quarter inches (see Figure 4). This configuration can be operated with the parts of the upper limbs, e.g., thumbs, fingers, fists, or heels of the hands.

Another type of interface, the "foot-keyboard," consists of key-tops with a diameter of one and a half inches,and a center-to-center lateral separation of three inches (Figure 5). These interfaces can be operated with the fists, heels of the hands, or other parts of the body by persons whose manual coordination is not sufficient for the smaller fist keyboard. In addition, they can be operated with the feet by individuals with virtually no ability to coordinate arm movements, or by upper-limb amputees. For foot-operation, the interface is placed in an appropriate position,either on the floor or a stand, with the user seated in a chair adjusted to the proper height so that the weight of the legs is supported by the edge of the seat, and feet "float" just at the level of the key-tops. In this position, keys can be actuated by simple toe depressions.

Since the configuration or spatial arrangement of keys in these interfaces is similar to that shown in Figure 1, the letter-keying code is as shown in Figures 2 and 3.

The Cybertype Unilateral Keyboards

Individuals who are unable to provide controlled bilateral coordination in arms, legs, or other parts of the body, employ the dual-input sequential interfaces, which consist of seven typing"Function Keys" and a "reset" or "correction" key. These interfaces require the use of only one part of the body, such as the tongue, a single limb, or other portion of the body which can be controlled.

The 7-key keyboards, two versions of which are shown in Figure 6, may be operated by actuating two keys, constituting a pair, sequentially. The first key depressed may be considered to correspond to the left bank or the "Control Key" side of a 14-key interface,and the second key depressed to the right bank or "Function Key" side of a 14-key interface. Thus, striking Key No. 1 followed by Key No. 2 will produce the letter "E." As with a 14-key interface, there are 7 x 7 or 49 possible pairs of dual-inputs which allow production of all the characters and functions available on the typewriters used. See Figure 6.

Figure 4

"Cybertype," Dual-Input Interface for Fist or Hand Operation

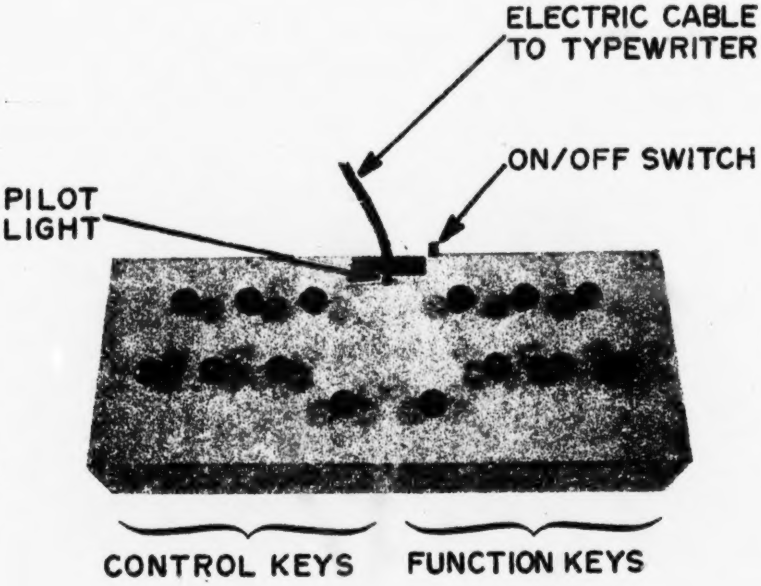

ELECTRIC CABLE TO TYPEWRITER
ON/OFF SWITCH
PILOT LIGHT
CONTROL KEYS
FUNCTION KEYS

Figure 5

"Cybertype," Dual-Input Interface for Fist or Foot Operation

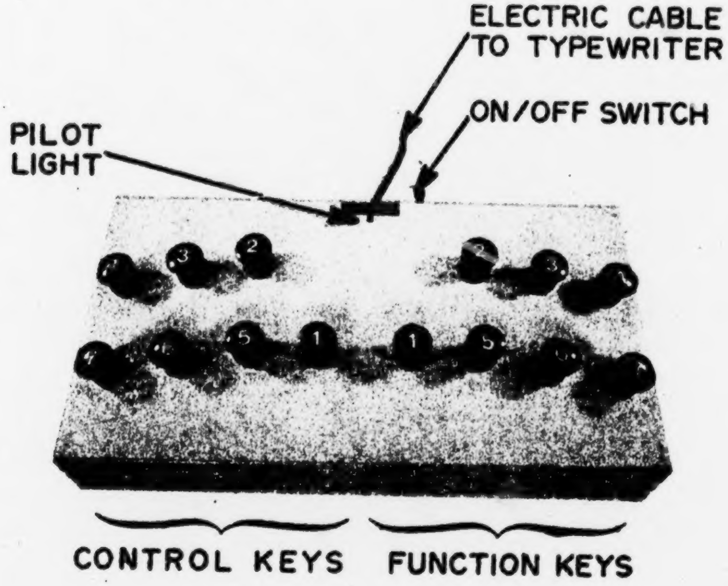
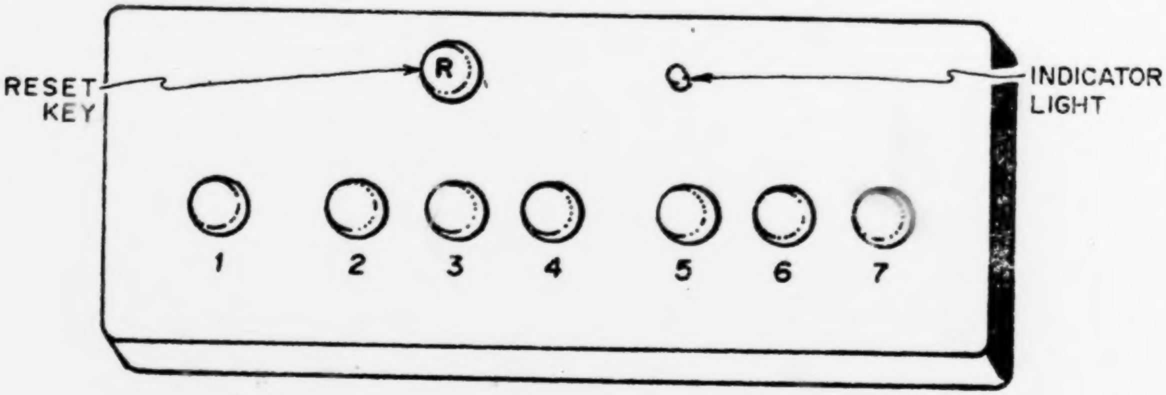
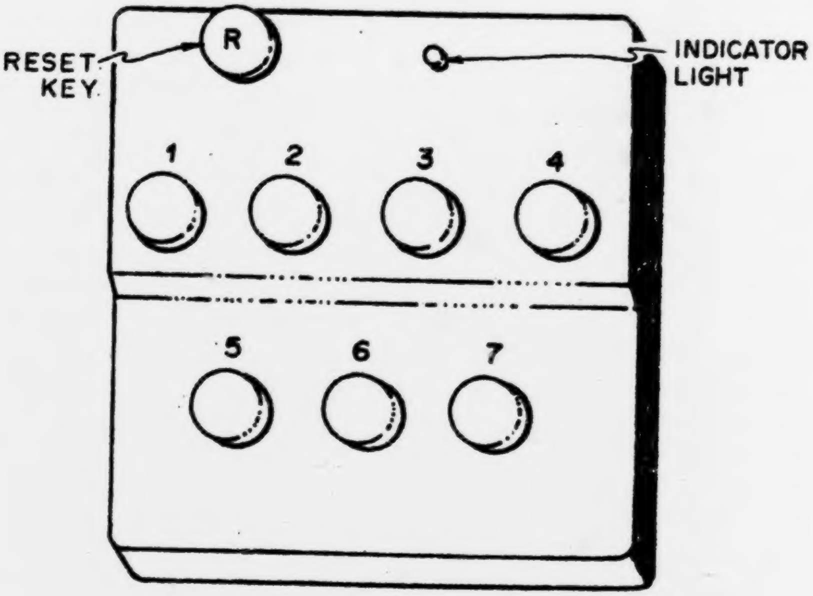

ELECTRIC CABLE TO TYPEWRITER
ON/OFF SWITCH
PILOT LIGHT
3
2
2
3
5
1
1
5
CONTROL KEYS
FUNCTION KEYS

Figure 6

"Cybertype," Dual-Input Sequential Interface for Operation with a Single Limb


RESET KEY
R
INDICATOR LIGHT
1
2
3
4
5
6
7

a) Dual-Input Sequential Interface: Single Row


RESET KEY
R
INDICATOR LIGHT
1
2
3
4
5
6
7

b) Dual-Input Sequential Interface: Double Row

Figure 7

Letter-Keying Code for 7-Key, Dual-Sequential Interface

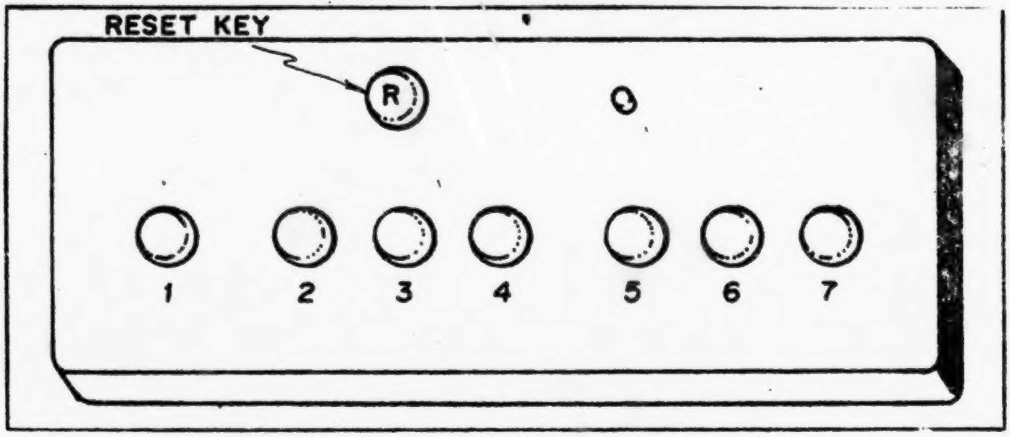


Diagram of 7-Key, Dual-Sequential Interface

Typewriter Functions		Dual-Sequential Keying Code First and Second Key Nos.
LC*	UC**	
Space		1, 1
e	E	1, 2
t	T	1, 3
a	A	1, 4
o	O	1, 5
n	N	1, 6
i	I	1, 7
r	R	2, 1
s	S	2, 2
h	H	2, 3
d	D	2, 4
c	C	2, 5
l	L	2, 6
m	M	2, 7

---

* Lower Case
**Upper Case

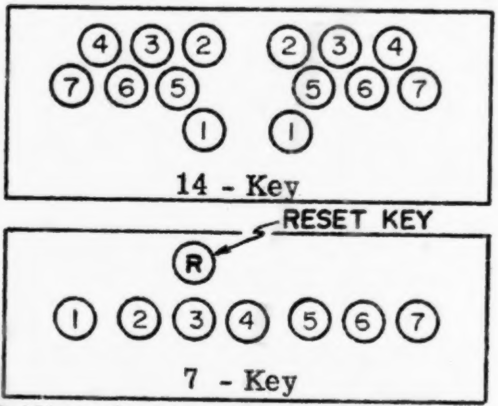
Typewriter Functions		Dual-Sequential Keying Code First and Second Key Nos.
LC*	UC**	
u	U	3, 1
f	F	3, 2
p	P	3, 3
y	Y	3, 4
b	B	3, 5
g	G	3, 6
w	W	3, 7
v	V	4, 1
j	J	4, 2
k	K	4, 3
.	.	4, 4
q	Q	4, 5
z	Z	4, 6
x	X	4, 7
Back Space		5, 1
!	°	5, 2
-		5, 3
'	"	5, 4
,	,	5, 5
/	?	5, 6
Tab Function		5, 7
LC* ("Shift Unlock")		6, 1
8	*	6, 2
9	(	6, 3
0	)	6, 4
;	:	6, 5
Carriage Return		6, 6
UC* ("Shift Lock")		6, 7

---

* Lower Case
**Upper Case

Typewriter Functions		Dual-Sequential Keying Code First and Second Key Nos.
LC*	UC**	
]	[	7, 1
2	@	7, 2
3	#	7, 3
4	$	7, 4
5	%	7, 5
6	¢	7, 6
7	&	7, 7

* Lower Case
**Upper Case



Outline showing key-identifications
7 and 14-Key Keyboards

If the incorrect "Control Key" is depressed inadvertently, the "reset key," which is located near the rear edge of the interface as shown in Figure 6, may be struck in order to clear the system immediately. After the "reset key" is depressed, the correct first key of the key-pair can be actuated, followed by the keying of the second key of the key-pair assigned to the desired letter. If there is an error on the first key struck, "automatic correction" may be achieved without use of the "reset key." All that is required is that the user wait until the red "indicator light" located on the keyboard goes out.

The red "indicator light" (shown in Figure 6) is always illuminated upon initial striking of the first key of each key-pair keying combination. When the second key of the key-pair is actuated, the typed response or typewriter function occurs and the "indicator light" goes out by itself.

The letter-keying code for the 7-key, dual-sequential interface is equivalent to that for the 14-key systems, and is shown in Figure 7. The 7-key interface configurations offer considerable flexibility and can be operated not only with a fist, foot, or tongue, but also with a "unicorn," a helmet-mounted stick, or "mouth stick." The interface shown in Figure 6b (4 keys in the upper row, 3 keys in the lower row) consists of somewhat larger key-tops and is suitable for operation by persons who have limited control.

The styles and types of keyboards or interface configurations for use with the "Cybertype" writing machines are almost unlimited. Variations of muscle and body-controlled transducers or keyboards operable from signals generated by the central nervous system, tongue-controlled keyboard, "joy-stick," glove, and lever-actuated switches,together with numerous other interface configurations operable with the aid of prostheses or ortheses can be selected to match the remaining motor capabilities of the disabled person.

Organization of Lesson Plans

This Instruction Manual is organized into 15 lessons. Each lesson should generally last about one hour, and one lesson should be given each day, four or five days a week. This is based on the experience of teachers who have had a high degree of success with their students, all of whom have been children with multiple impairments.

When working with a group of students, a prerequisite is that the teacher, with the aid of each student,select the appropriate interface out of the set of interfaces provided with the system. If only one writing machine in the classroom is available, all of the students' and the teachers interfaces may be connected to it, as shown in Figure 8. Children may be introduced as a group or individually to the teacher's demonstration of the keying positions of the appropriate keyboard or interface. They should practice operating the interface selected for their use following the procedures enacted by the teacher.

During these group practice sessions, those interfaces which are not used to operate the "Cybertypewriter" are either disconnected from the junction box or if equipped with switches, they are turned off. Each student can then be given individual attention in practicing the exercises which accompany each lesson, with or without activating the"Cybertypewriter." At individual practice sessions the student's interface switch is connected to the junction box or turned "on," so that the desired exercises are typed.

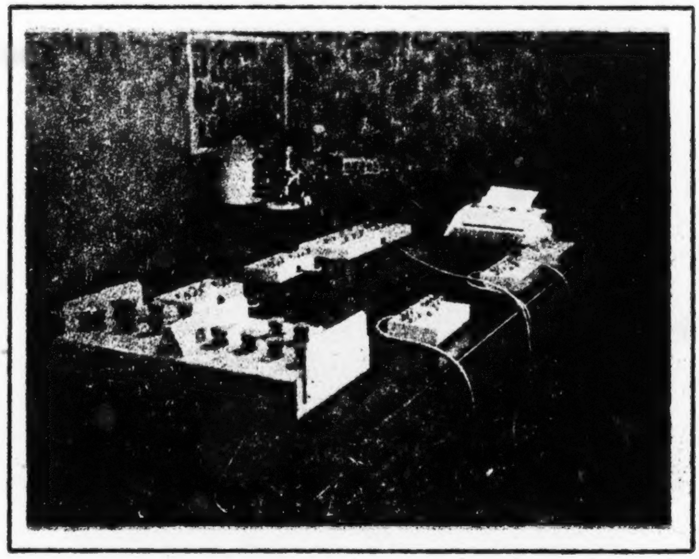
In the meantime, other students whose interfaces are turned "off" are not precluded from practicing; they may practice their exercises by "keying" their interfaces, even though no typewritten output is obtained. Ordinarily, more than one"Cybertype"should be in the classroom,and the teacher can observe each member of the group and obtain typewritten copy for each student in the group by looking at the monitor "Cybertype."

Cyber-Circus Story

The Appendices to this Manual include a "mnemonic" or memorization aid called the "Cyber-Circus Story." The characters and events in this story are related to letters and symbols and to their "Cybertype" keying positions.

Figure 8

A Variety of "Cybertype" Interfaces
Connected to a Single Electric
Typewriter for Group Instruction



This story has power to be a valuable aid to memorization with the subjects tested. It appears to develop enthusiasm and increase the student's motivation in learning to use the "Cybertype" and perform more effectively in their other activities. The story is compatible with the lesson plans in this text.

Supplementary Materials

The Appendices include a "Supplementary Materials" section which provides practice exercises to be used in augmenting the exercises included with each lesson. The teacher may review the Supplementary Materials section and select appropriate exercises which would serve as additions to the regular lesson plans.

It is recognized that students' age levels, cognitive,motor, and sensory capabilities contribute toward their rate of progress. The teacher is encouraged to constantly consider these factors and employ a teaching plan which will have the greatest probability of being effective for a particular student or group of students. It should be remembered that all of the experimental instruction materials were developed for a research study and evaluation program,whose principal objective was to determine the feasibility of the "CYBERCOM" man-machine communications systems.

LESSON PLANS
FOR THE
14-KEY (DUAL-CONCURRENT) INTERFACE

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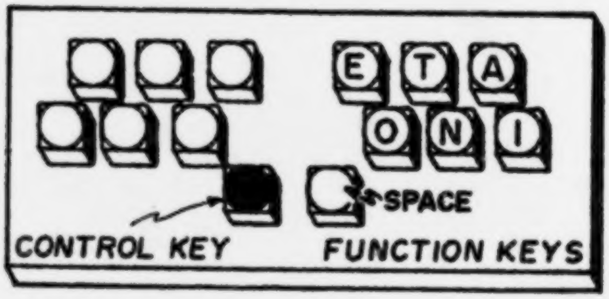
15	67

LESSON 1

Before teaching students any of the "Cybertype" letter-keying "associations," introduce them to the electric writing machine by explaining how it operates. One way to simplify this task is to demonstrate the similarity of keys on the keyboard to electric light switches. For example, you may point out and explain that when one of the light switches is turned on, somewhere in the room a light "comes on." Similarly, when keys of a keyboard are depressed, letters or symbols to be typed appear.

Teachers are urged to review the C/R/I Second Report* for details and descriptions of other "Cybertype" instructional programs.

The functions to be introduced in this first lesson are: "Space," E, O, T, N, A, I. Note that Control Key No. 1 for the left hand is used to produce these characters.



Students should be shown the locations of these seven functions (in the order presented above), and should be given time to copy the "Dexterity Exercises" found on the student practice sheet (page 21). The practice exercises are provided on separate pages for your convenience.

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*Available from the Librarian, Cybernetics Research Institute, 2233 Wisconsin Avenue, N. W., Washington, D. C., 20007.

If desired, these pages can be reproduced and presented to students for copying. If you are working with a group of children, copies of these exercise sheets should be provided for each student.

The "Dexterity Exercises" are designed to give students practice necessary in learning which keys produce which letters. Since repetition is essential in learning the letter-keying associations, each student should practice the exercises until she or he has thoroughly memorized the code for letters presented in the lesson.

After memorization, proceed to the "Practice Sentences" in Part 2 of the exercise sheet, and have each child type each sentence in the order shown. This part of the lesson gives students a chance to learn how their keyboards can be used to produce printed words in the context of meaningful sentences.

Note that the exercises in this lesson are presented in capital letters. Therefore, it is advisable to engage the typewriter in the "upper case" (Shift Lock) position so that the letters produced by students will resemble those on their exercise sheets. In a later lesson (Lesson 6), students are introduced to the keying codes for shifting between upper and lower cases.

For students who have not learned how to operate the typewriter "Carriage Return" function, you should do this for them, when necessary, by operating together the middle keys (No. 6) in the lower rows on both sides of the interface (see Figure 3, page 7).

LESSON 1

1. **Dexterity Exercises**

EEE OOO TTT NNN AAA III
AAA III TTT NNN EEE OOO
EO EO OT TN AT TI
IAN TOA EOT NAI ONO ITO

2. **Practice Sentences**

EAT ONE
I ATE ONE
ANN ATE NINE
TEA AT NOON
IN A TENT
TEA AT TEN
I ATE AN ONION

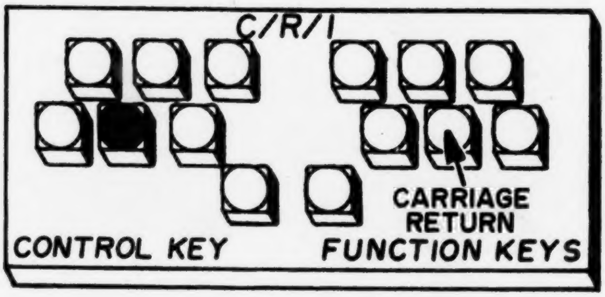
LESSON 2

This lesson is a review of the typing functions learned in the first lesson: "Space," E, O, T, N, A, I. It is important for students to master the keying positions for these functions before proceeding further.

Have students copy the words and phrases provided at the top of the exercise sheet for this lesson. This practice should reveal the extent to which children have remembered functions learned in the previous lesson. If additional practice is necessary, use the exercises for Lesson 1, then return to the "Copy Words and Phrases" for this lesson.

The questions in Parts 2 and 3 on the exercise sheet are designed to stimulate the children's imagination. Students should answer these questions in their own words and to the best of their ability. However, at this early stage, it may be necessary for you to provide some "coaching" or suggestions for these creative exercises.

At this time, introduce the carriage return function to the students.



Demonstrate the keying position for this function and, if necessary, explain the purpose of the carriage return. The carriage return function may be explained to young children as "the mechanism on the typewriter that rolls the paper to a new clean line so that you can continue typing."

Have students practice the carriage return keying position a few times, and thereafter have them use it appropriately when they wish to type a new line of print on the paper.

LESSON 2

1. Copy Words and Phrases

OAT	ONE TOE
NONE	TEN ATE
EATEN	TEA TOO
TON	IN AN INN
AN ANT	EAT AN ONION
NOT ONE	NOON TO ONE

2. What numbers can you spell using only the letters E-O-T-N-A-I? Type them.

3. How many words can you make using only the letters E-O-T-N-A-I? Type them. (You may use the same letter more than once in a word.)

LESSON 3

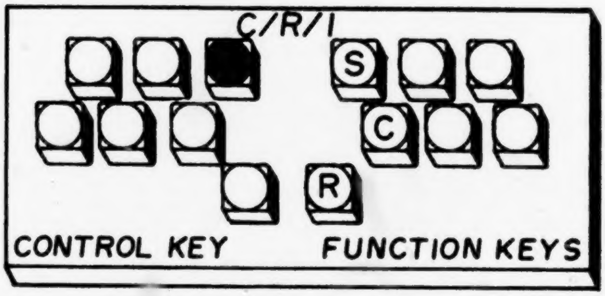
The first "Training Exercise Test" (Training Exercise No. 1 on page 27) should be administered at the beginning of this lesson. It is best to precede the test with a brief review of "Space, E, O, T, N, A, I."

This training exercise must be timed with a stopwatch and be administered according to the following procedure. Each child should be given the exercise individually in a quiet room without distracting noises or movements. It is suggested that the teacher should not use the word "test" in describing these "Training Exercises."

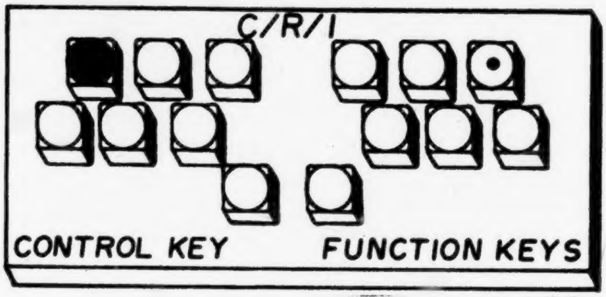
Use your own judgment in wording the instructions for these tests, but give the child directions approximately as follows: "Today, you are going to receive a special exercise so that you too can find out how well you are doing." --- (Place exercise sheet in front of child.) --- "Type the three sentences on this page as fast as you can, but concentrate and try to make a perfect copy."

Let the child see your stopwatch and explain that you want to find out how much time is taken in completing the exercise. Give the child a signal to start, and at the end of one minute, record on the "Scoring Sheet" the letter and word being typed, but do not interrupt the student at this point. Allow the child to continue typing all three sentences in the test and record the total time required to complete the exercise. Let the student know the amount of time recorded by the stopwatch.

Present the new material in this lesson once the test is completed. The functions to be introduced in this lesson are: R, S, C, . (period). Students should first be shown the keying locations of R, S, and C, and be given time to copy the "Dexterity Exercises" found on the exercise sheet on page 29.


C/R/I
S
C
R
CONTROL KEY
FUNCTION KEYS

After students have completed these exercises, indicate the use and keying locations for the period. Since the period function of the 14-key keyboard requires a different Control Key than the functions R, S, and C, it should be introduced separately. Students will then be prepared to proceed with the "Dexterity Exercises" which include periods, as well as the "Practice Sentences."


C/R/I
CONTROL KEY
FUNCTION KEYS

TRAINING EXERCISE NO. 1

TEN IN A NET

AT A TONE

NO ONE ATE IT

TRAINING EXERCISE TEST

Scoring Sheet

Student's Name:______________________________

Teacher:__________________________________

Date:___________________

Location:_________________________________

Training Exercise Test No. _______

1. Location in Cybertyping at end of first minute:

Letter______________, **Word**______________

2. Total time for completion____________________

Note: Attach student's paper to this form and return to C/R/

LESSON 3

1. **Dexterity Exercises**

RRR SSS CCC

CCC SSS RRR

RS RC SC SR CR CS

RSC SRC SCR CSR CRS RCS

... ...

R. S. C.

.C .R .S

.RCS. ...

2. **Practice Sentences**

NAN RAN.

ONE CAR IS TAN.

ETTA SITS.

SCOT RACES.

TEN ATE ON A CART.

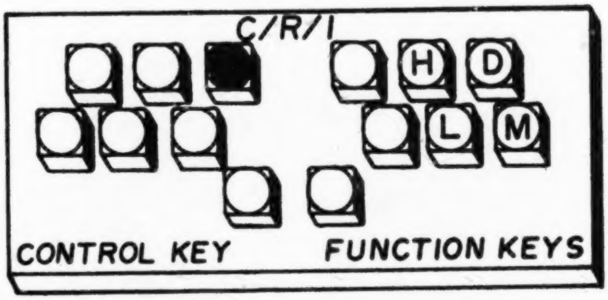
IT SCARES RON.

I CARE.

LESSON 4

In this lesson, students will be taught the remaining four functions of Control Key No. 2. These letters, along with those the students have already learned, will enable them to produce a sizeable word vocabulary.

The letters to be introduced are: H, L, D, M.



Present the key locations for the new letters in the order indicated above. Then have students complete the "Dexterity Exercises" involving these new functions.

Emphasize the fact that Control Key No. 2 for the left hand can produce all seven letters (R, S, C, H, L, D, M). When the children demonstrate that they have learned the keying positions for H, L, D, and M, have them proceed to the "Practice Sentences" in Part 2 of the exercise sheet.

LESSON 4

1. Dexterity Exercises

HHH LLL DDD MMM

HLH LHL DMD MDM

HD DH LM ML

HM MH LD DL

HLD HLM DMH DML

HLDM HLDM

2. Practice Sentences

SHE RAN IN THE SAND.

TODD RAN A MILE.

IT IS A MILD MONTH.

LITTLE OLD HENS SIT STILL.

ED HELD IT THREE TIMES.

TOM AND HE HAD SOME.

ANN HAS A COLD NOSE.

SARAH HAS RED SHOES.

CALL AND TELL HER.

LESSON 5

Lesson 5 is a review of Lessons 3 and 4, involving the letters produced by Control Key No. 2: R, S, C, H, L, D, M.

Students should copy the words and phrases at the top of the exercise sheet for this lesson. For additional practice, Part 2 of the exercise sheet involves forming new words from the letters in the word "CHRISTMAS." Part 3 requires the student to make new words from sequences of scrambled letters. It may be necessary for you to modify or even delete these "creative exercises" for one or more students, depending on age and ability. Here again, the judgment of the teacher is invaluable.

LESSON 5

1. Copy Words and Phrases

THE
CLAD
CHART
MAIL
CLAM
CENTS
CLOSE

ROSE
MITTENS
SAD LION
LAME HORSE
CAR DOOR
ADD COCOA
STAND AND CHAT

2. How many words can you make using only the letters in the word CHRISTMAS? Type them.

3. Unscramble the letters below to make new words. Type the words you make.

S-T-E-A	(a direction)
H-T-N-R-O	(another direction)
M-R-T-H-O-E	(someone in your family)
S-E-T-N	(a bird's home)
O-O-T	(a word that means also)

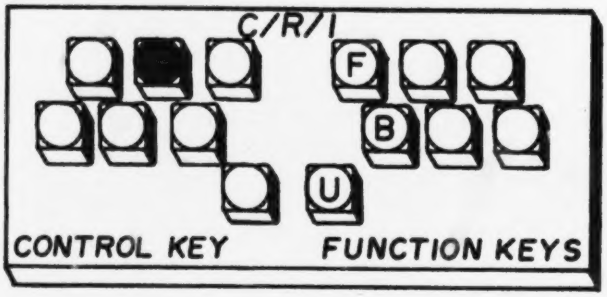
LESSON 6

The second "Training Exercise Test" should be administered at the beginning of this lesson. It is best to precede the test with a brief review of "R, S, C, H, L, D, M, period."

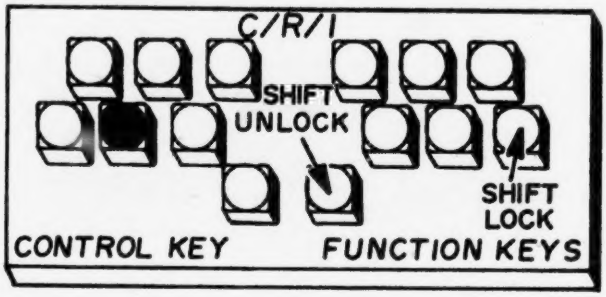
Once the test is completed, present the new material contained in this lesson.

Functions to be introduced in Lesson 6 are: U, F, B, "Shift Lock" and "Shift Unlock."

Students should first be introduced to U, F, and B, produced by Control Key No. 3, then be given time to copy the "Dexterity Exercises" utilizing these letters.



After the children have completed these exercises, show them the keying positions for "Shift Lock" (upper-case) and "Shift Unlock" (lower-case), and have them proceed to the second set of "Dexterity Exercises."



Following the above, students should type the "Practice Sentences" in Part 2 of the exercise sheet.

Thus far, the typewriter has always been placed in the "Shift Lock" (upper-case) position. Starting with this lesson, students will be able to produce upper- and lower-case letters, symbols, and functions by themselves.

Throughout the lesson, emphasize that Control Key No. 3 is used to produce the letters U, F, or B, and that the "Shift Lock" and "Shift Unlock" functions require the use of Control Key No. 6.

TRAINING EXERCISE NO. 2

CATCH MICE.

MOM READS.

LEARN SHORT RIDDLES.

TRAINING EXERCISE TEST

Scoring Sheet

Student's Name:____________________________________

Teacher:____

Date:______________________

Location:____

Training Exercise Test No. ________

1. Location in Cybertyping at end of first minute:

   Letter_____________, Word____________________

2. Total time for completion________________________

Note: Attach student's paper to this form and return to C/R/I

LESSON 6

1. Dexterity Exercises

uuu fff bbb

fff bbb uuu

uf uf ub ub fb fb

fu bu bf

ufb fub fbu bfu buf ubf

UFB ufb

Uu Ff Bb

UfB uFb

2. Practice Sentences

Call his bluff.

Ruth has a fur coat.

See the fat buffalo.

It fell behind that board.

Until then Beth felt fine.

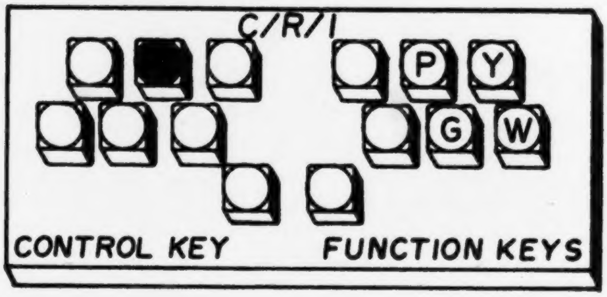
Fred earned a blue ribbon.

Turn left under the tall tree.

LESSON 7

In this lesson, the students are to be introduced to the remaining four functions of Control Key No. 3.

The functions to be introduced are: P, G, Y, W.



As before, students should first be introduced to the letters in the order suggested above. Allow time to complete the "Dexterity Exercises" involving these new letters; then have students proceed to the "Practice Sentences." If, at the end of the lesson, any students appear uncertain of these functions, provide them with additional practice using the dexterity exercises or practice sentences in this lesson.

LESSON 7

1. Dexterity Exercises

ppp ggg yyy www

pgp gpg ywy wyw

py yp gw wg

pyw pgw ywg ypg

pgyw pgyw

2. Practice Sentences

A fat puppy yawned.

Ginny made a floppy poppy.

Many of the frogs were bigger.

Run it up the flag pole.

We flew up to Washington.

The baby played outside in the sun.

Bubbles wiggled through the water.

LESSON 8

Lesson 8 is a review of the function series for Control Key No. 3: U, F, B, P, G, Y, W (functions presented in Lessons 6 and 7). Again, it is important that the students master this series before proceeding further in the "Cybertype" code.

For practice, students should copy the words and phrases in Part 1 of the exercise sheet for this lesson. If the students perform well, proceed to the other parts of the exercise sheet. Part 3 involves words beginning with "un." Ask your students to make up words using letters you have previously taught them.

LESSON 8

1. Copy Words and Phrases

purple
four
ply
dry
typewriter
Cybertype

flag down
fluffy cotton
big bug
baby buggy
wagging tail
playful puppy

2. Type the names of the days of the week.

3. How many words, using the letters you have already learned, can you think of that begin with un? Type them.

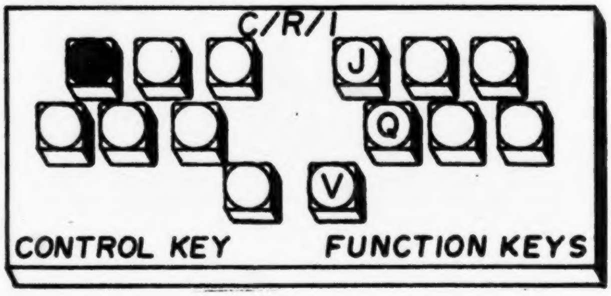
4. Unscramble the letters to make new words. Type the words you make.

n-a-w-y	(a sign that you are sleepy)
g-p-i	(a farm animal)
w-r-g-o	(to get bigger)
w-g-s-a	(what a happy dog's tail does)
f-u-b-f	(to rub to a shine)

LESSON 9

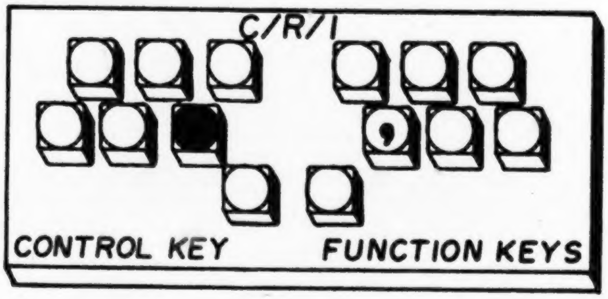
The third "Training Exercise Test" should be administered at the beginning of this lesson. Remember to precede the test with a brief review of "U, F, B, P, G, Y, W."

The functions to be introduced in this lesson are: V, J, Q, and the comma symbol.


C/R/I
J
Q
V
CONTROL KEY
FUNCTION KEYS

Introduce the letters V, J, and Q in the order listed. Allow the students sufficient time to copy the "Dexterity Exercises" involving these three letters. Stress that Control Key No. 4 is used to obtain these functions. The comma should be introduced next. Point out that the comma requires a different control key than that used to produce V, J, and Q. Have students copy the "Dexterity Exercises" including the comma, and continue to the "Practice Sentences" in Part 2.

Part 3 is a creative exercise requiring children to make up words using only the letters in the word "ASTRONAUT." Students usually enjoy the discoveries involved in such "Anagram" word games, and similar language-building exercises may be developed by teachers and students for use as supplementary instructional materials.



TRAINING EXERCISE NO. 3

Long bumpy beds

Franny chews gum.

Frog tripped twice.

TRAINING EXERCISE TEST

Scoring Sheet

Student's Name:______________________________

Teacher:__________________________________

Date:________________

Location:_________________________________

Training Exercise Test No. ______

1. Location in Cybertyping at end of first minute:

   Letter______________, Word ________________

2. Total time for completion_____________________

Note: Attach student's paper to this form and return to C/R/I

LESSON 9

1. **Dexterity Exercises**

vvv jjj qqq

jjj qqq vvv

vj vq jv qv

vjq vqj jvq

jqv qvj qjv vjq

,,, ,,,

v, j, q,

v,j v,q j,q

v,q

2. **Practice Sentences**

Joe gave Jane a Valentine.

Jim, it is very quiet here.

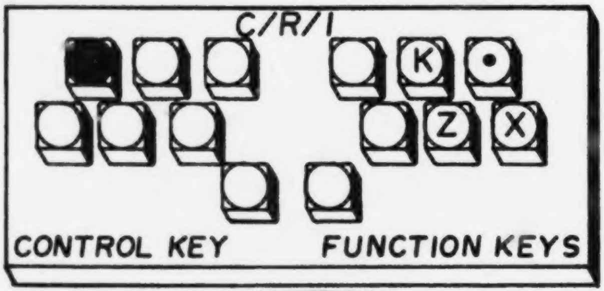
Quietly jump over the fence.

Vince visits us every evening.

3. How many words can you make using only the letters in the word ASTRONAUT? Type these words.

LESSON 10

The functions to be introduced in this lesson are: K, Z, . (period), X.



Show the students the keying locations for these functions in the order listed, and allow them time to copy the "Dexterity Exercises." Emphasize the fact that the Control Key No. 4 on the left side of the interface is used to produce these functions. Remind students that they have already learned the keying positions for the period, and give some review practice with this punctuation mark, if needed. Finally, have students complete the "Practice Sentences" in Part 2 of the exercise sheet.

LESSON 10

1. Dexterity Exercises

kkk zzz ... xxx

... zzz xxx kkk

kz zk .x x.

k.z zx kx z.

kz.x kz.x

2. Practice Sentences

Max and Kathy danced the waltz.

Dr. and Mrs. V. J. Keats were there.

Exit via the next door.

The fox quietly ran past the zebra, the kangaroo, and the monkey.

A dozen children quickly ran through the maze of people.

Suzie put six zippers in a box.

The fuzzy kitten sneezed.

LESSON 11

Lesson 11 is a review of the functions introduced in Lessons 9 and 10: V, J, Q, , (comma), K, Z, . (period), X.

Briefly review the keying locations for these functions with the students and have them copy the words and phrases in Part 1 of the exercise sheet. If any students appear uncertain of these functions, provide them with additional practice before proceeding. The students should then complete the exercises in Parts 2, 3, and 4 of the exercise sheet.

Following this lesson, you may want to have the students practice using those exercises from the "Supplementary Materials" Appendix to this Instruction Manual which deal with letters of the alphabet. These exercises will provide a valuable review of Lessons 1-10. Furthermore, the supplementary exercises provide practice with frequently used letter groups and can facilitate "Cybertyping" performance.

Lessons 12-15 introduce the keying locations for numbers and symbols available on the typewriter.

LESSON 11

1. Copy Words and Phrases

buzz
very
exit
walk
square
zipper
vex
squeak
jump
jam

a black kitten
a jolly juggler
quit quarreling
a lazy lizard
six taxis
violet velvet

2. Type the alphabet. (A, B, C, etc.)

3. Type the names of the months of the year.

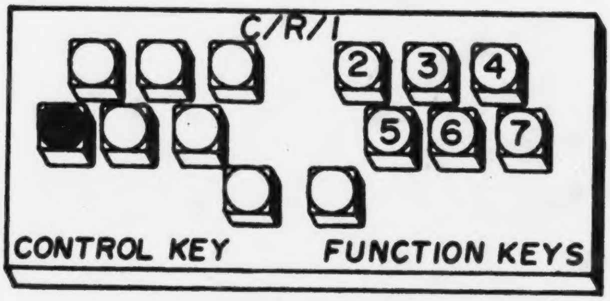
4. Now that you have learned to "Cybertype" all the letters of the alphabet, make up three sentences of your own and type them.

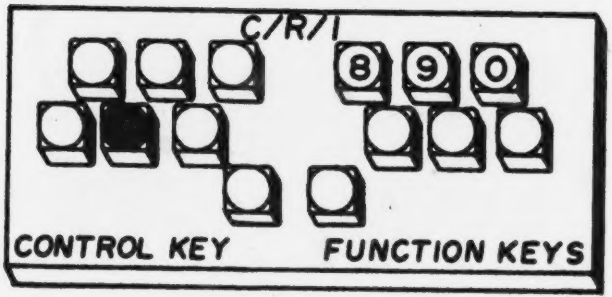
LESSON 12

The fourth "Training Exercise Test" should be administered at the beginning of this lesson. As usual, precede this with a brief review of the functions to be tested. Once the test is completed, introduce the new material in this lesson.

The functions to be introduced in this lesson are the numerals: 2, 3, 4, 5, 6, 7, 8, 9, 0.

The numerals 2 through 7 are obtained with the Control Key No. 7, while 8, 9 and 0 are part of the series for Control Key No. 6.


C/R/I
2
3
4
5
6
7
CONTROL KEY
FUNCTION KEYS


C/R/I
8
9
0
CONTROL KEY
FUNCTION KEYS

On some typewriters, it is necessary to use the lower case letter "l" for the numeral "1." Other typewriters will have the numeral "1" (one) as the first function in the Control Key No. 7 series. Be sure to check this on your typewriter and interface before introducing numerals to the students. If your electric typewriter employs the lower case letter "l" for the numeral "1," instruct your students accordingly.

Introduce the keying locations of the numerals to the children, then have them complete the "Dexterity Exercises" and the "Practice Sentences." The numerals are relatively easy to learn because their keying locations are arranged in ordinal sequence. Supply additional practice on the numerals for those students who need it; appropriate exercises may be found in the Supplementary Materials section of the Appendix to this manual.

TRAINING EXERCISE NO. 4

I have a blue jar.

A lazy dog was quiet.

The monkey pinched the fox.

TRAINING EXERCISE TEST

Scoring Sheet

Student's Name:______________________________

Teacher:__________________________________

Date:____________________

Location:__________________________________

Training Exercise Test No. ________

1. Location in Cybertyping at end of first minute:

   Letter______________, Word______________

2. Total time for completion____________________

Note: Attach student's paper to this form and return to C/R/I

LESSON 12

1. **Dexterity Exercises**

1 2 3 4   1 2 3 4

5 6 7   8 9 0

1 2 3 4 5 6 7 8 9 0

10, 9, 8, 7, 6, 5, 4, 3, 2, 1, 0

25   34   16   78   90

57   41   63   829   0

0 1 2 3 4 5 6 7 8 9 10

2. **Practice Sentences**

Mother needs 2 loaves of bread and 4 quarts of milk.

I will be ready on the count of 3.

There are 7 bananas in this bunch.

A dozen is the same as 12.

John has 56 marbles, and Ken has 98 marbles.

In a countdown, 0 is the last number.

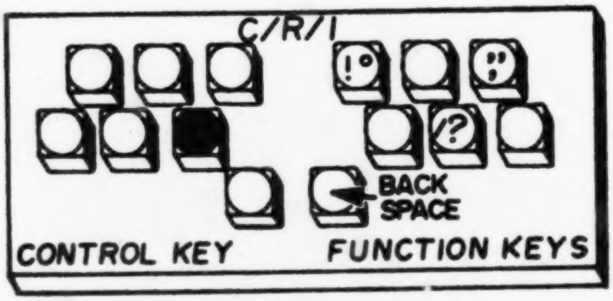
1 2 3 4 5 6 7 8 9 10, ready or not, here I come.

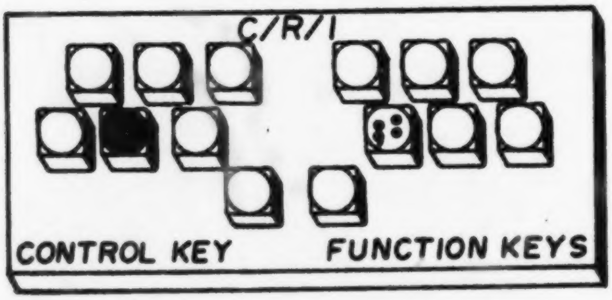
LESSON 13

Briefly review the numerals, then administer the fifth "Training Exercise Test." Present the new materials in this lesson once the test is completed.

Lesson 13 introduces the frequently used punctuation symbols which have not been taught previously. These symbols are obtained with the Control Keys. No. 5 and No. 6.

The functions to be introduced in this lesson are: / ? ' " backspace ! ; :


C/R/I
BACK SPACE
CONTROL KEY
FUNCTION KEYS


C/R/I
CONTROL KEY
FUNCTION KEYS

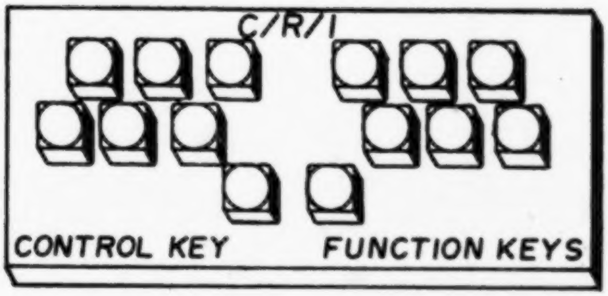
Introduce the symbols obtained from the fifth and sixth Control Keys in the order given above. It may be necessary to explain the significance of these symbols to some students. Several of these functions are located in upper case as shown in the preceding illustration.

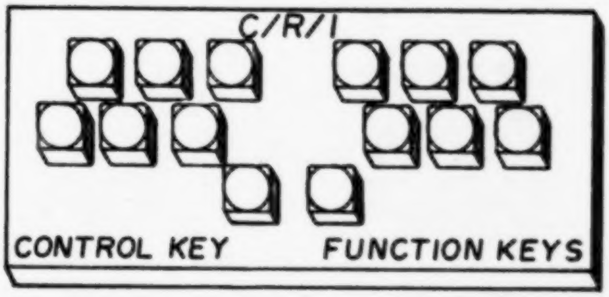
After introduction of the symbols, students should complete Parts 1 and 2 on the exercise sheet. If necessary, provide additional practice using Supplementary Materials in the Appendix.

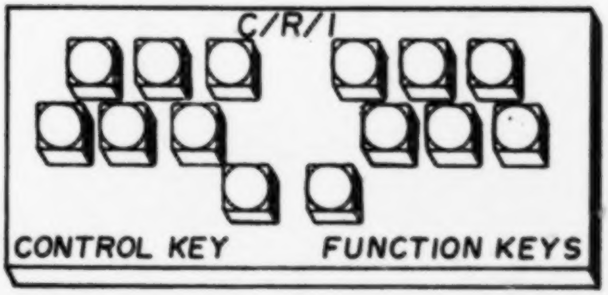
Some punctuation symbols are not introduced in this Instruction Manual because they are used so infrequently. These symbols include: * ( ) @ # $ & %

If an individual student needs to type any of these symbols, the keying locations can be identified by referring to the diagrams in Figure 3 of the Introduction (page 7). Since typewriters vary in the key assignments for certain symbols, dual keying positions can be verified in the following manner: (1) Check the numeral keys on your typewriter to find the symbol desired, remembering that the symbols are upper case functions on typewriters; (2) note the dual keying positions for the numeral corresponding to the desired symbol; (3) place the typewriter in Shift Lock (upper-case) position; and (4) type the desired symbol.

If your keying assignments for certain symbols do not correspond with Figure 3 (page 7), fill in the key positions for these functions using the blank charts on the next page.


C/R/I
CONTROL KEY
FUNCTION KEYS


C/R/I
CONTROL KEY
FUNCTION KEYS


C/R/I
CONTROL KEY
FUNCTION KEYS

TRAINING EXERCISE NO. 5

379 minus 379 equals 0.

4 x 6 is 24.

58 plus 1 is not 8.

62 minus 10 is 52.

TRAINING EXERCISE TEST

Scoring Sheet

Student's Name: ______________________________

Teacher: ______________________________

Date: ____________________

Location: ______________________________

Training Exercise Test No. ________

1. **Location in Cybertyping at end of first minute:**

   Letter ______________ **, Word** ______________

2. **Total time for completion** ____________________

Note: Attach student's paper to this form and return to C/R/I

LESSON 13

1. Dexterity Exercises

///   ???   '''   """   ;;;   :::

/?   /?   ?/

' "   ' "   " '

; :   ; :   : ;

(practice the backspace)

!   !   !

/   ?   '   "   !   ;   :

:   '   ?   /   "   ;   !

2. Practice Sentences

I am here; Dad is over there.

Do you want to come along?

"Ouch! It hurts!" cried Mike.

Ann is 8; Mary is 7.

Buy the following: coffee, cheese, milk, cookies and/or doughnuts.

Is Nov. 12, 1970, also written 11/12/70?

Begin the letter with Dear Sir:.

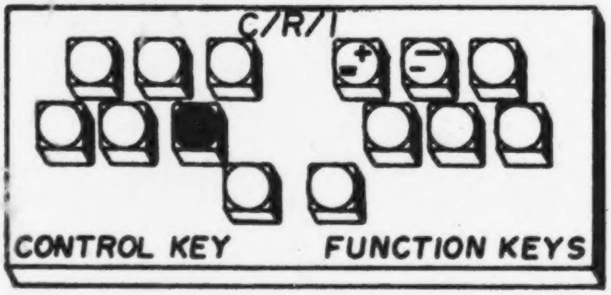
"That's Pam's bike," said her brother.

LESSON 14

The sixth "Training Exercise Test" should be administered at the beginning of this lesson. Precede this with a brief review of the punctuation symbols. Once the test is completed, present the new material contained in this lesson.

This lesson introduces the math symbols. These are obtained with the Control Key No. 5.

The symbols to be introduced are: = + - (minus) _ (underline). Keying positions for these symbols are shown in the chart below for the IBM "Model C" electric typewriter. IBM "Selectric" typewriters with "Prestige Elite," "Courier," "Letter Gothic," or "Delegate" type styles do not provide the "+" and "=" symbols at all. Check the typewriter assigned to your program to verify positions for these symbols.



As illustrated in the above diagram, + and _ are upper case functions; = and - are lower functions.

For multiplication, the small "x" is used, and a small "d" is suggested for the division sign. The "d" has been chosen to represent "divided by."

Have students complete the "Dexterity Exercises" and the math problem activities on the exercise sheet. Provide additional practice materials for students requiring further assistance.

TRAINING EXERCISE NO. 6

He said, "Is it Al's?"

Oh no; not now!

Dear Sir:

TRAINING EXERCISE TEST

Scoring Sheet

Student's Name: ______________________________

Teacher: ______________________________

Date: ____________________

Location: ______________________________

Training Exercise Test No. ______

1. Location in Cybertyping at end of first minute:

   Letter ______________, Word ____________________

2. Total time for completion ____________________

Note: Attach student's paper to this form and return to C/R/I

LESSON 14

1. Dexterity Exercises

=== +++ --- ___ (3 underlines)

=+ =+ +=

-_ -_ _-

=_+-

-=+_

_=-+

=+-_ =+-_

x x d d / /

2. Math Problems

1+7=8

6-2=4

5x2=10

9d3=3

14	9	6	24	39	4
+3	-5	x2	+1	-8	x4
17	4	12	25	31	16

4d2=2

LESSON 15

This is the last formal lesson of the Instruction Manual. Begin by administering the seventh, and final, "Training Exercise Test" found on the next page.

The exercise sheet for this lesson consists of suggestions for creative writing. However, for this exercise, children should be encouraged to develop their own ideas in creating stories to be printed using their interfaces.

TRAINING EXERCISE NO. 7

2+2+4=8

7-6=1

5x1=5

9d3=3

TRAINING EXERCISE TEST

Scoring Sheet

Student's Name: ______________________________

Teacher: ___________________________________

Date: ____________________

Location: __________________________________

Training Exercise Test No. ________

1. **Location in Cybertyping at end of first minute:**

   Letter ______________, **Word** ______________

2. **Total time for completion** ____________________

Note: Attach student's paper to this form and return to C/R/I

LESSON 15

Suggestions for Creative Writing:

Once there was a little boy who loved (popsicles)...

Once I found...

Once a____________lived deep in the woods...

Once upon a time, long ago, ...

Once there was a family of purple caterpillars ...

C/R/I
INSTRUCTION MANUAL

APPENDIXES

I. The Cyber-Circus Story Page A-1
II. Supplementary Materials Page B-1

THE CYBER-CIRCUS STORY

Introduction

The following experimental teaching program developed for use with one class of dual-input interfaces is based on the principles of associative learning. One purpose of these instructional materials is to assist the student in learning how to communicate effectively in written form using the various types of interfaces designed for disabled persons.

Experience has shown that the circus story intrigues children and transforms an ordinary learning task to an eagerly awaited event. The Cyber-Circus Story gives meaning and life to each typewriter function and its respective keying positions. Each circus setting or event provides a concrete clue with which the student can associate letters, symbols, and punctuation marks. The story associations impress upon the student the fingering positions for these functions on their keyboards.

Inexpensive, colorful circus models may be built in the classroom, including three tents and the characters in the story. Thus, the story comes alive with animated, purposeful, and associative ideas. Children can also refer to the drawings which accompany the story in this Instruction Manual. Copies of these drawings may be given to young children as a "coloring book," an exercise which will further increase interest in learning to communicate.

The Cyber-Circus Story should be told to the children at the start of the instructional program, before they have even been introduced to their keyboard interfaces. As the story is told, reference can be made to the appropriate drawings or to the circus models, if these are available.

After the entire circus story is read to the children, they will enjoy the daily lessons that follow. During each day's lesson, reference should be made to the appropriate events in the story.

THE CYBER-CIRCUS STORY

"Let's Go to the Circus"

It was spring and the towns people were anxiously awaiting the arrival of their annual circus.

One day, while the Interface children, Eva, Tom and Ann, were returning from school, they saw a man posting circus signs reading, "The Cyber-Circus is Coming to Town."

The children ran home breathlessly to tell their mother, but to their surprise, their mother had big news for them. She said, "Children, I heard that the circus is coming to town so I hurried downtown and bought tickets for Saturday." Eva, Tom and Ann clapped their hands and shouted with glee, "Hurrah for Mom." "Wait," interrupted their mother, "I have another surprise for you. Each of you may go downtown and buy one thing to take with you on the bus to the circus grounds."

Early Saturday morning, the children went downtown. Eva
bought Oatmeal cookies, Tom bought Nuts and Ann surprised every-
one with a cup of Ice cream which she kept in the freezer until the E T A
bus left for the circus. O N I

The bus left at noon and the Interface family was all ready to go. Eva boarded the bus first, then Tom, and Ann followed. Mother took the front seat directly behind the bus driver. The bus driver was a very kind and understanding young man for he permitted their dog to occupy the last seat in the bus if he did not cause a disturbance.

When the bus reached the circus grounds, there was a smell of sawdust and canvas in the air. The big Circus Parade was in progress. Many bands were playing their loudest. A steam organ with its steam whistle pipes, mounted on a red, white and blue wagon, delighted the children. Huge elephants, little elephants, and elephants with funny hats followed holding each other by the tail and swinging their trunks to the organ music. There were also roaring lions and tigers in fancy circus wagons, camels giraffes, pretty girls riding white horses, a bear on a motorcycle, and clowns—fat ones and thin ones, tall ones and short ones; clowns with red ball noses, big mouths, and bigger shoes, all marching to the "oompah, oompah, boom, boom" of the big brass drum in the band. With the end of the parade, the circus audience readied themselves for a gala day.

"Let us see the shows in the three tents first, children," said mother, "Then we will see all the side shows later." "Look," cried Tom, "There are the three huge tents on the left side of the grounds." "Oh yes," said Eva, "And each tent has a large letter on its banner." "Those letters all mean something," said mother, "Listen to hear what the barker is saying."

A barker wearing a bright green and red striped jacket with a straw hat, and holding a cane was standing on a stool in front of the 'R' tent calling: "Come to the 'R' tent and see three great animals acts. There's a big event in each of the three rings. Hurry! Hurry! Hurry!" R

The Interface family joined the circus crowd and moved into the tent.

Everyone rushed over the sawdust floors to the bleacher seats. Eva, Tom and Ann were never so happy as they sat swinging their legs back and forth, eating oatmeal cookies, nuts, and ice cream, and blowing up their balloons. Up and down the aisles, men with white coats were selling soft drinks, popcorn, nuts and balloons. The excitement and noise frightened their dog so much that he leaped up on Tom's lap to be safe. The bands were playing and all the circus crowd tapped out the rhythm of the music while waiting for the show to begin.

The barker was now inside the tent and standing on a high pedestal shouting in his megaphone, "Ladies, Gentlemen, and Children! Be seated, as our first act is about to begin." Just then in the first ring, a Camel galloped in briskly with a tall Skinny clown riding on his back. The Camel shook, kicked, and tried furiously to shake Skinny from his back. Skinny flew from side to side, up and down the Camel's humps, and almost fell off at times, but he managed to stay on. "How can he possibly stay on?" said Tom. "Hold on Skinny," shouted the entire audience,
"Don't give up." Skinny won. When the act ended, Skinny, the S
clown, waved to the children as he rode out of the ring. C

At the height of all this excitement, a tall green Ladder was being set up in the second ring. All of a sudden, a little Hen fluttered into the second ring and landed on the first rung of the Ladder. She fluttered and struggled as she climbed up the Ladder. "Oops," cried the audience when the Hen almost toppled over. Everyone held their breath. It took a lot of doing, but the brave little Hen made it to the top of the tall green Ladder. Everyone H
agreed that this was a great and very unusual act. L

All was quiet as the hen left the ring until a big Monkey in a red velvet suit entered the third ring. The children clapped and clapped for the Monkey. The Monkey gave a great performance doing tricks and turning somersaults. He leaped up on a pole and shinnied up to the top. There he waved his little hat to the children. As he slid down the pole, a fantastic thing happened! Eva, Tom and Ann's dog jumped off Tom's lap, ran down the tent aisle, and into the third ring. He leaped up on the Monkey's back! In a split second, the entire audience was standing on top of the bleacher seats shouting and cheering. The Monkey, taken by surprise, furiously tried to shake the Dog from his back, but the Dog did not fall off. Everyone laughed, as they thought it was a planned act. The Interface family realized that they were in trouble, and Tom ran down to get his Dog. "Hurrah! Hurrah! Yippie!" screamed the children. Then the owner of the circus stopped Tom and said, "Young man, do you realize that this is one of our best acts?" He was so pleased that he hired their Dog and paid Mrs. Interface for
the Dog's services and gave the children free circus tickets for the D
season. M

"Hurry, mother," called the children when all this excitement had subsided, "Everyone is going to the second tent, the 'U' tent." The barker in all his glory was shouting, "Hurry! Hurry! Hurry! See the greatest clown acts in the world. Bear to your left, all you
(U) folks and all you (U) children. Don't miss a single act." U

As the children entered the 'U' tent, clowns were throwing candy kisses to the lucky audience. Tom found ringside seats. When the band stopped, everyone looked to the first ring. In it was a huge blue and red Ball. Suddenly, Flippo clown ran into the ring and leaped on that Ball. His feet traveled like the wind as he rolled the Ball all around the ring, up and down three steps, up and down a steep ramp. The more the audience clapped and

cheered, the faster Flippo rolled the Ball. Finally, he hopped F
off the Ball and ran out of the ring. B

The band played and many clowns danced outside the rings. Looking at the second ring, Tom discovered that the floor of that ring looked like a roller skating rink. "I bet our next act will be penguins on skates," said Tom. "Nope," answered Ann, "We will now see clowns doing figure skating." No sooner had Ann spoken, when Poppo clown, holding a small Goat by his four feet, skated into the ring. "What a skater," announced the barker, "Folks, please welcome Poppo clown and his Goat. His spectacular act has had world acclaim." The tent was filled with great applause. Poppo performed on his roller skates doing "figure eights" and many stunts while holding tightly to his Goat. The Goat was wriggling and wriggling until he finally got loose and sprinted around the ring. What fun the Goat had running from Poppo. "Get him, Poppo!" shouted the audience. What a skater! What a thrill! What a Goat!
At last, Poppo carefully caught the Goat, then skated out of the P
ring in the midst of thunderous applause. G

The barker moved to ring three and shouted, "Ladies, Gentlemen and Children! You are about to see the only tent in the world that can automatically open its top." What a sight to look up and see the top of the tent folding back. As the top folded back, there was the roar of an airplane. It was a plane with a stunt clown doing very dangerous but thrilling tricks in the air. While people were watching this, a clown carrying a sign saying, "I am Yumyum," parachuted from the plane into a Water tank in the center of the ring. It was so sudden that part of the circus crowd screamed while others sat speechless and stunned. The big splash was heard
a block away. There was an outburst of applause as "Yumyum" Y
climbed out of the Water tank and bowed to the audience. W

My, how busy the barker was that day! He called everyone to the last tent, which was the 'V' tent. He promised that, although it was the last tent, many surprises were in store for all who attended. "Don't dilly-dally along the way or you will miss Jay clown, our real cowboy clown with his magic rope. Please enter the tent two-by-two; don't crowd; go in an orderly fashion, for the show will not begin until all are seated." Everyone listened, and streams of people entered
the 'V' tent, going in two-by-two. V

When the band stopped playing, Jay clown began twisting and twirling his magic rope in the first ring. With his rope, he formed triangles, squares, circles, geometric forms, and all types of figures with great ease and as a real expert. He left his best trick until last. He was the only clown who could make a perfect letter 'Q' with a rope. Jay clown really made a very good 'Q' on the floor of the first ring. J Q

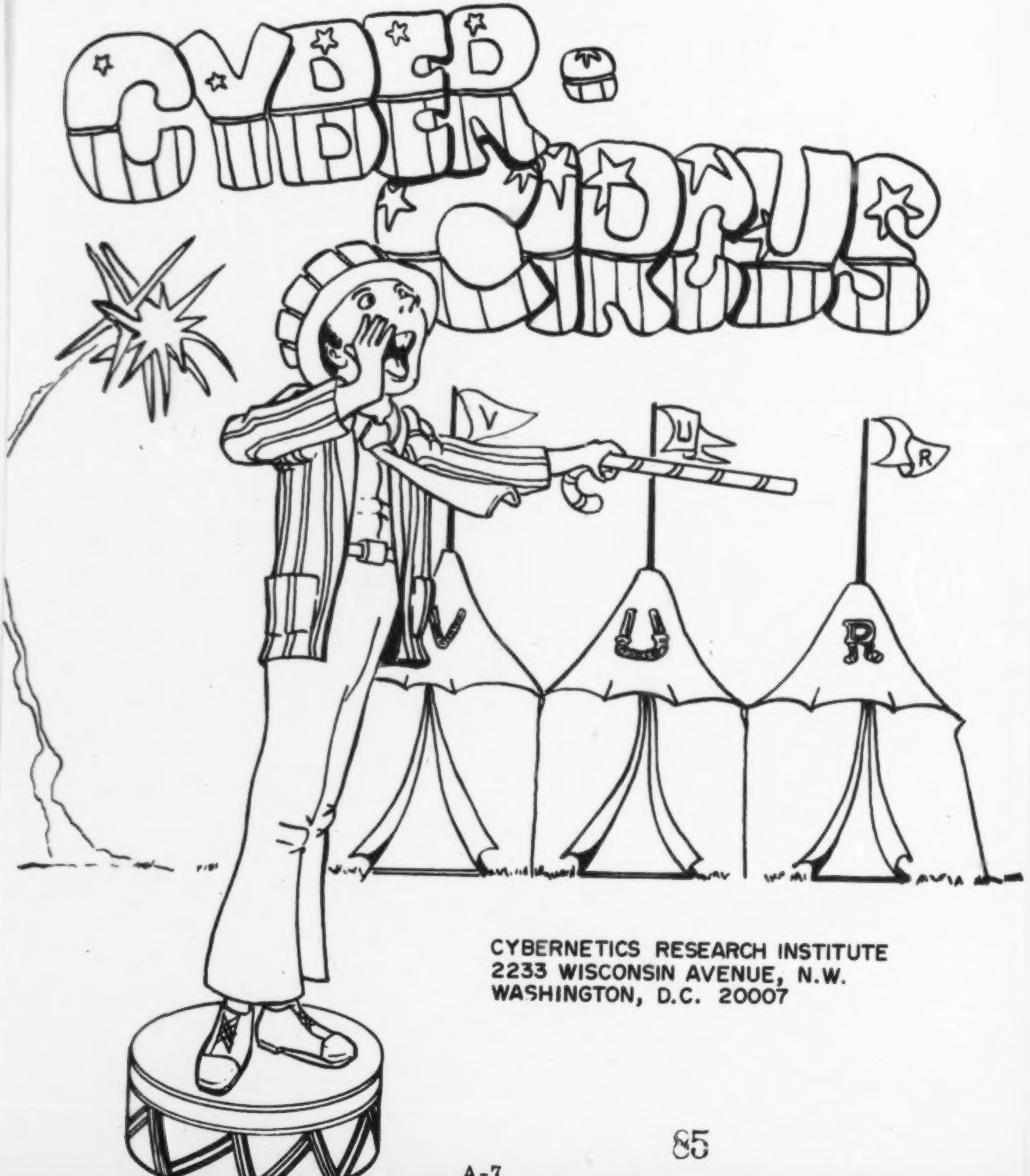
While Jay ran out of the ring with his rope, a large Kangaroo hopped into the second ring in leaps and bounds terrified by a striped Zebra which was chasing her. Frightened, but with no place to hide, the Kangaroo leaped high into the air and jumped right over the Zebra. She jumped over the Zebra again and again. Pretty soon the Zebra was so confused and bewildered that she sat down in the middle of the ring and just looked up at the hopping Kangaroo. K Z

Even though the show was almost over, there was much excitement going on in the third ring. Children jumped up on their bleacher seats to see a little girl dressed in a bright red dress with one big dot on the front. The dot looked like the 'period' we use at the end of our sentences in writing. The little girl always wore such a dot on her dress, so they called her 'Dot.' She performed many interesting tricks with her baton. She twirled it over head, between her legs and in every direction. She was really great. Eva shouted, "Hurrah for Dot, I wish I could do as well with my baton." Dot was in ring three which was directly ahead of a stairway leading out of the tent. Dot had an important responsibility in this circus to direct the circus audience out of the 'V' tent to the eXit door. Dot looked so cute as she pointed downstairs to the eXit door. . X

This was the end of the tent shows at the Cyber-Circus. Eva, Tom and Ann and their mother agreed that the barker was right when he announced that the circus was the greatest show on earth.

That evening, the Interface family and their famous dog returned home tired but very happy.

Cybernetics Research Institute


CYBER-CIRCUS
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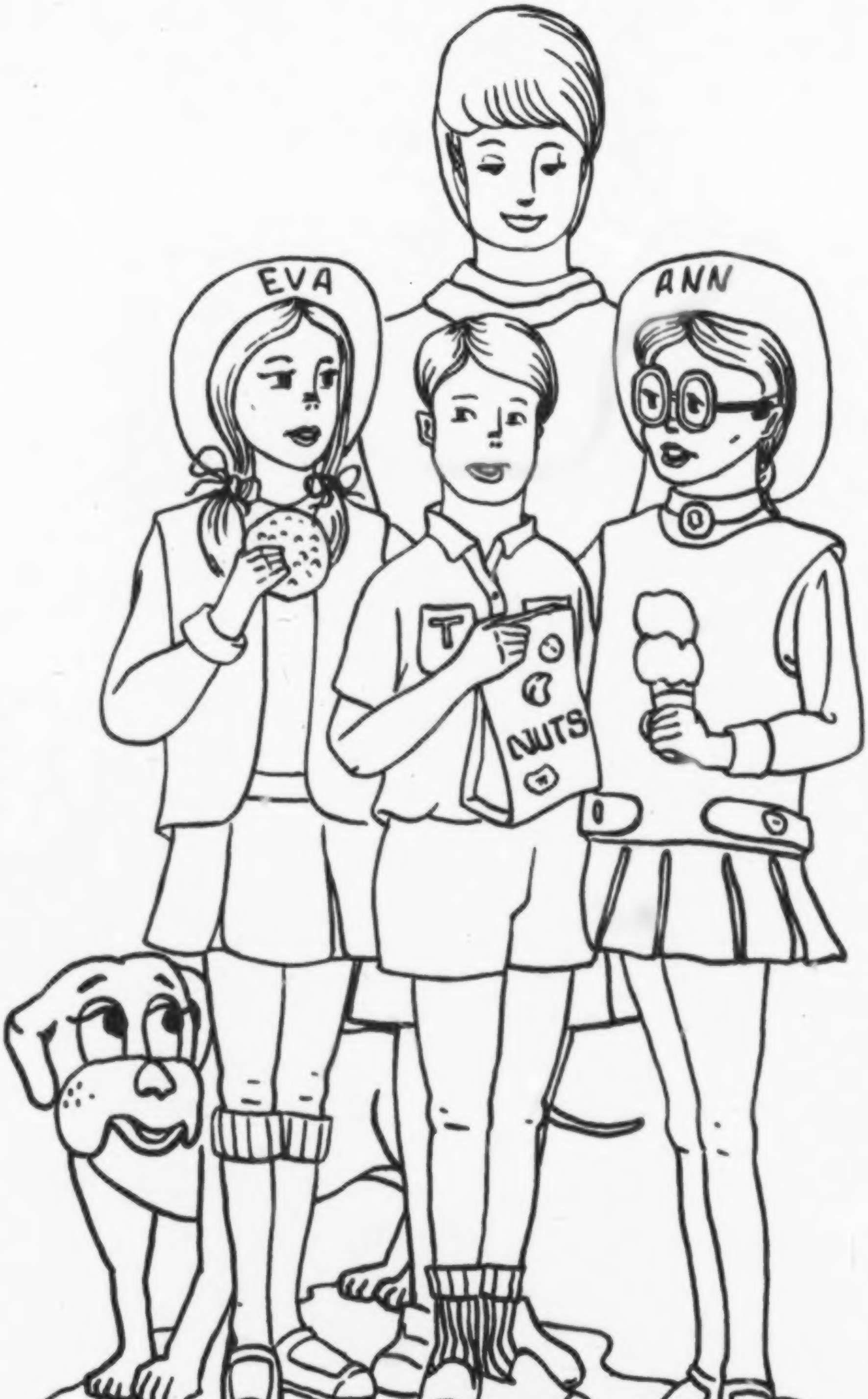
CYBERNETICS RESEARCH INSTITUTE
2233 WISCONSIN AVENUE, N.W.
WASHINGTON, D.C. 20007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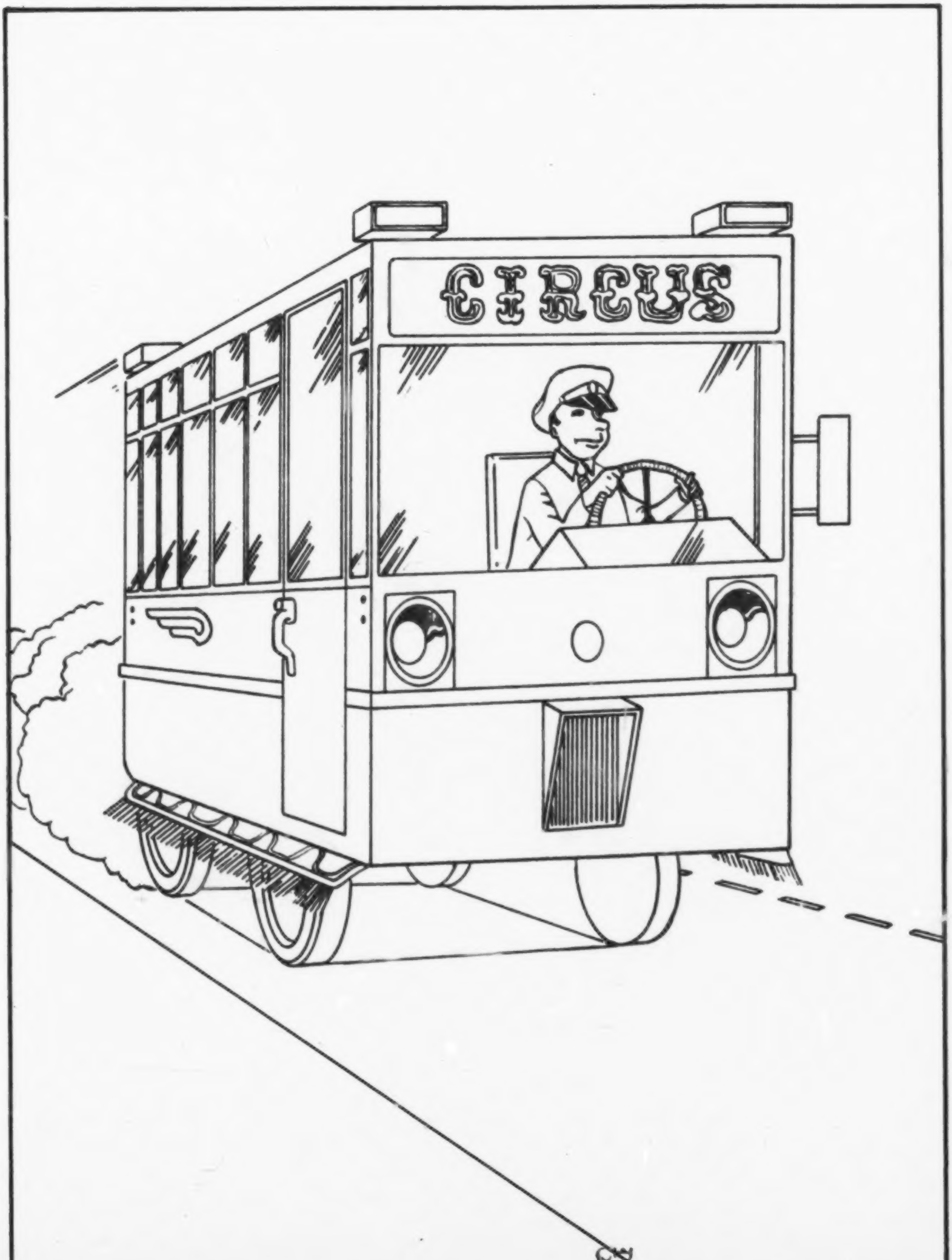
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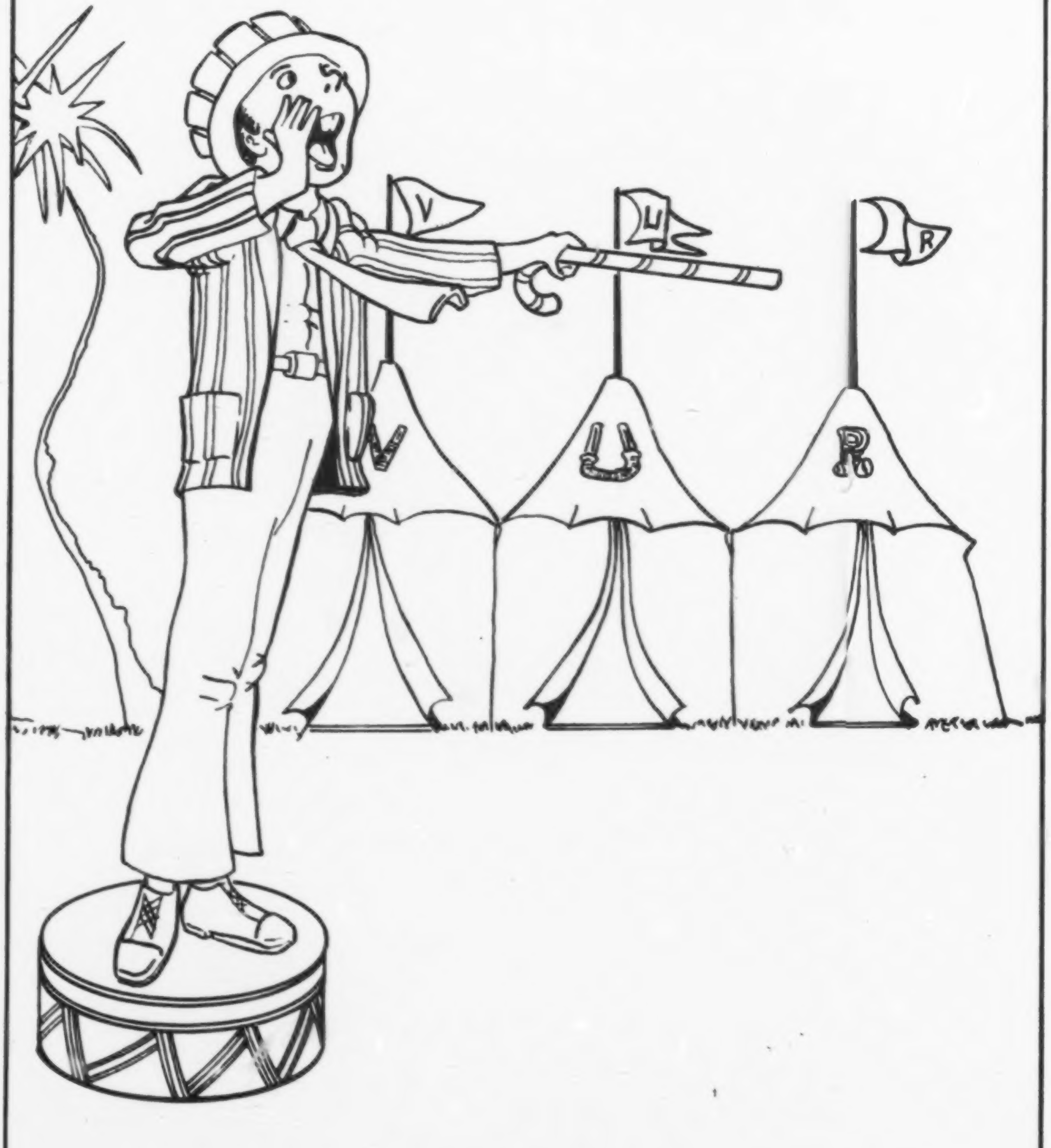
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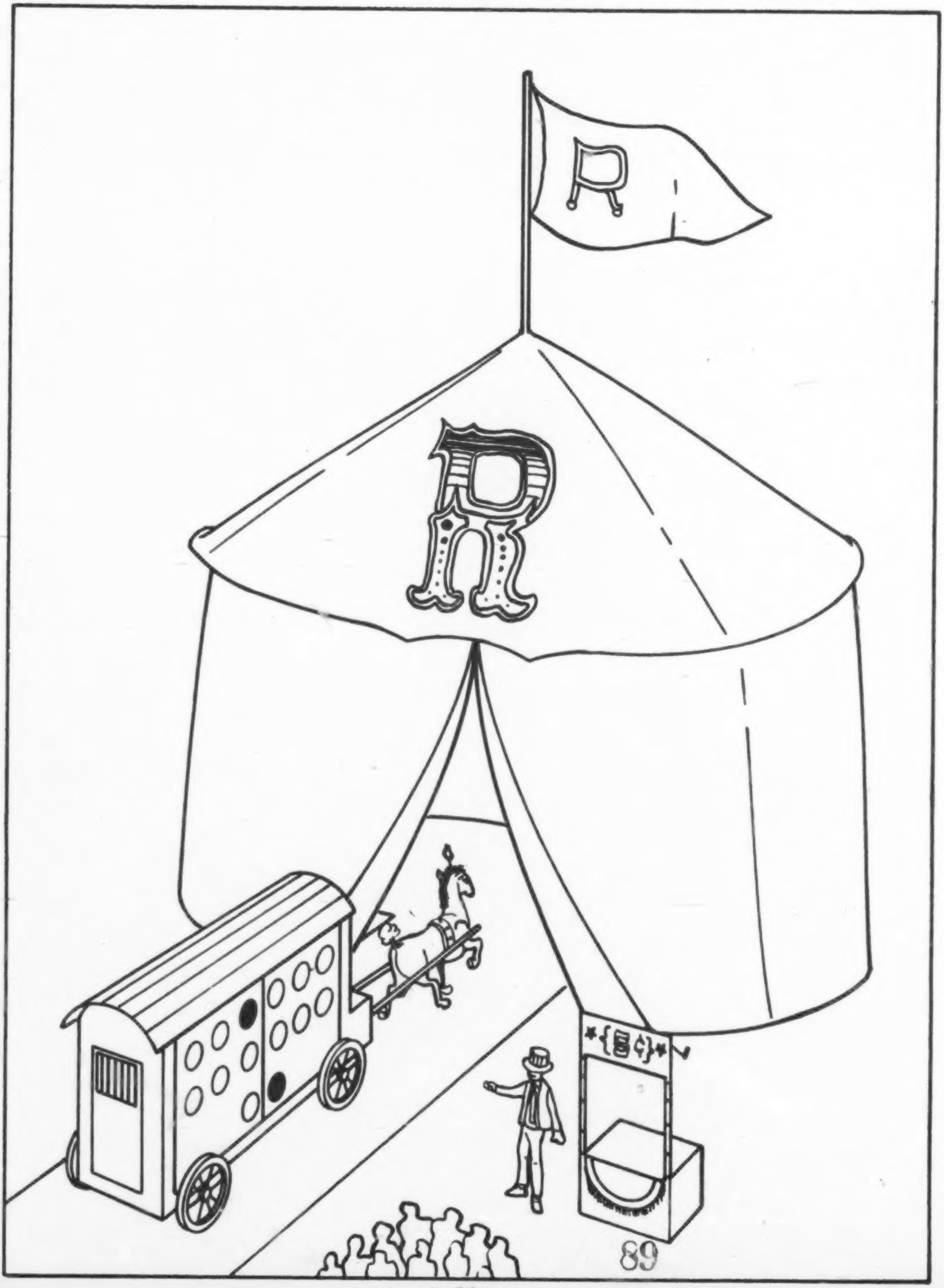
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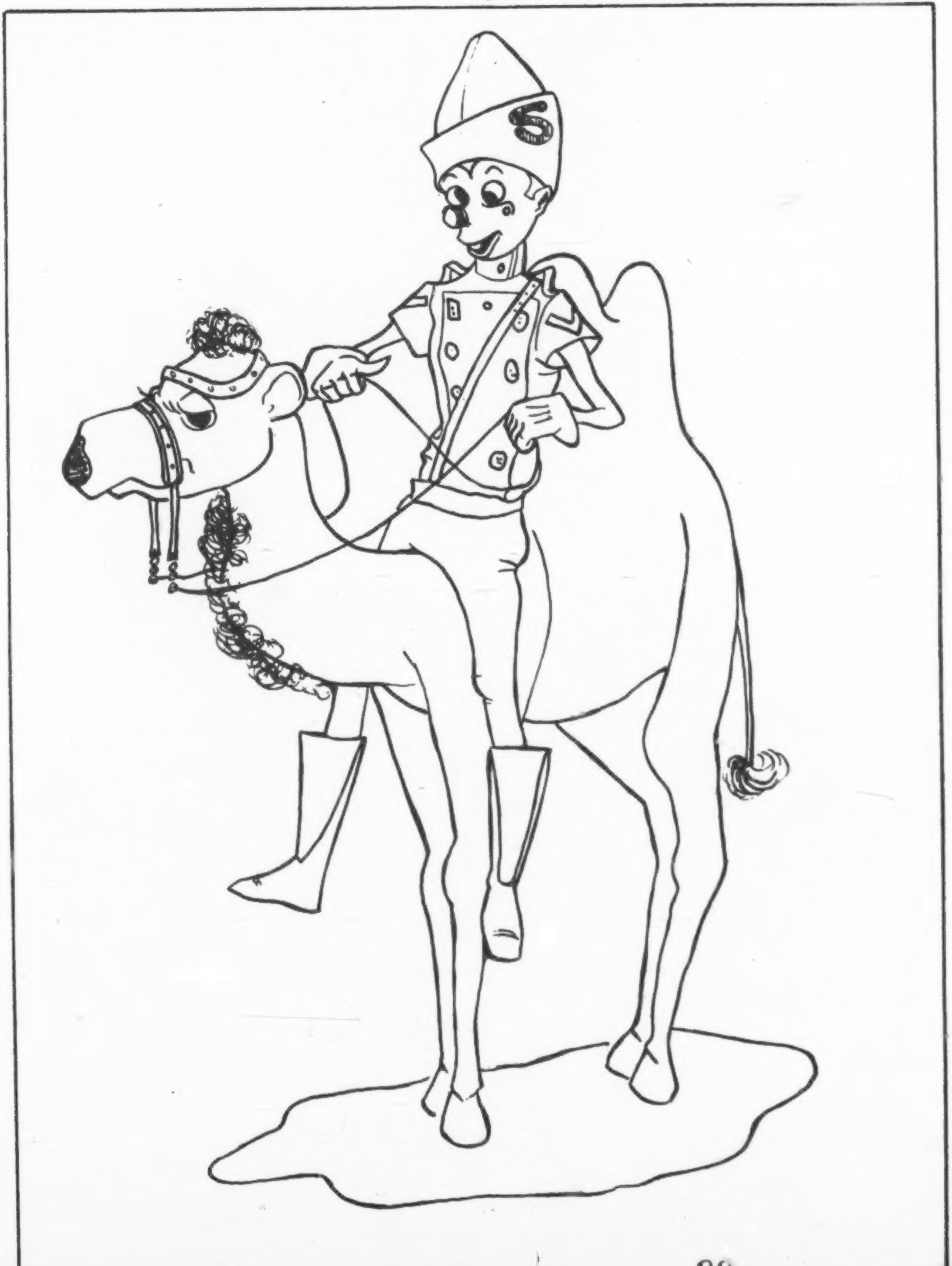
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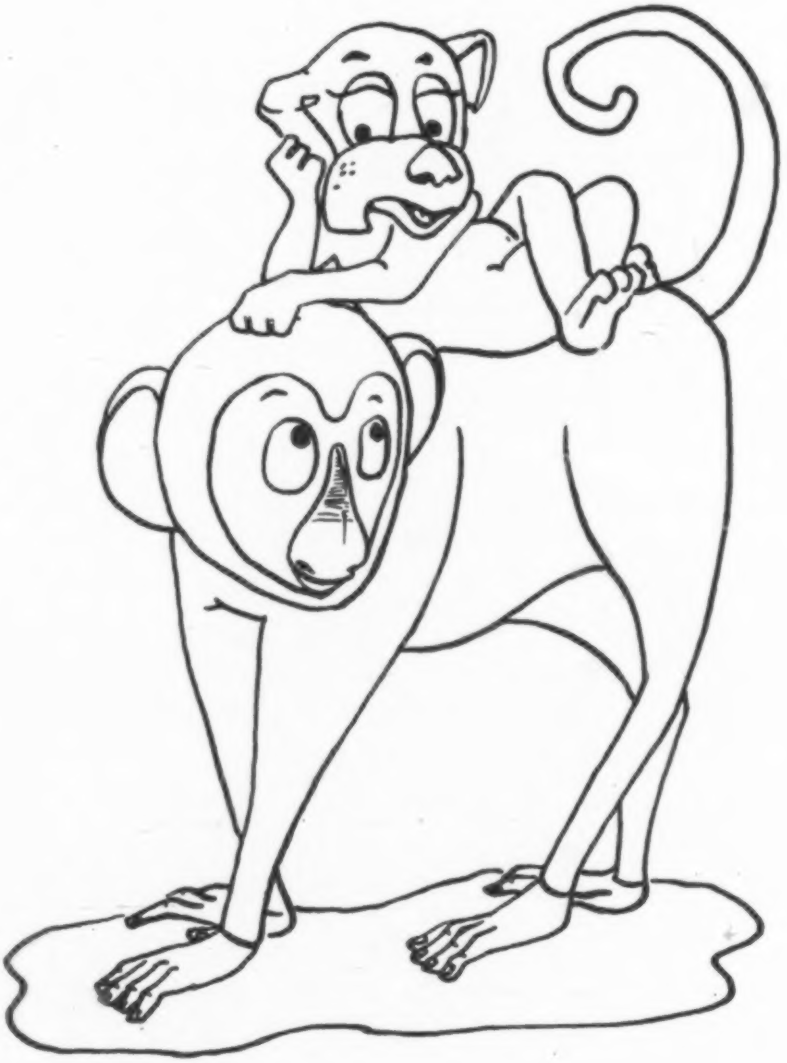

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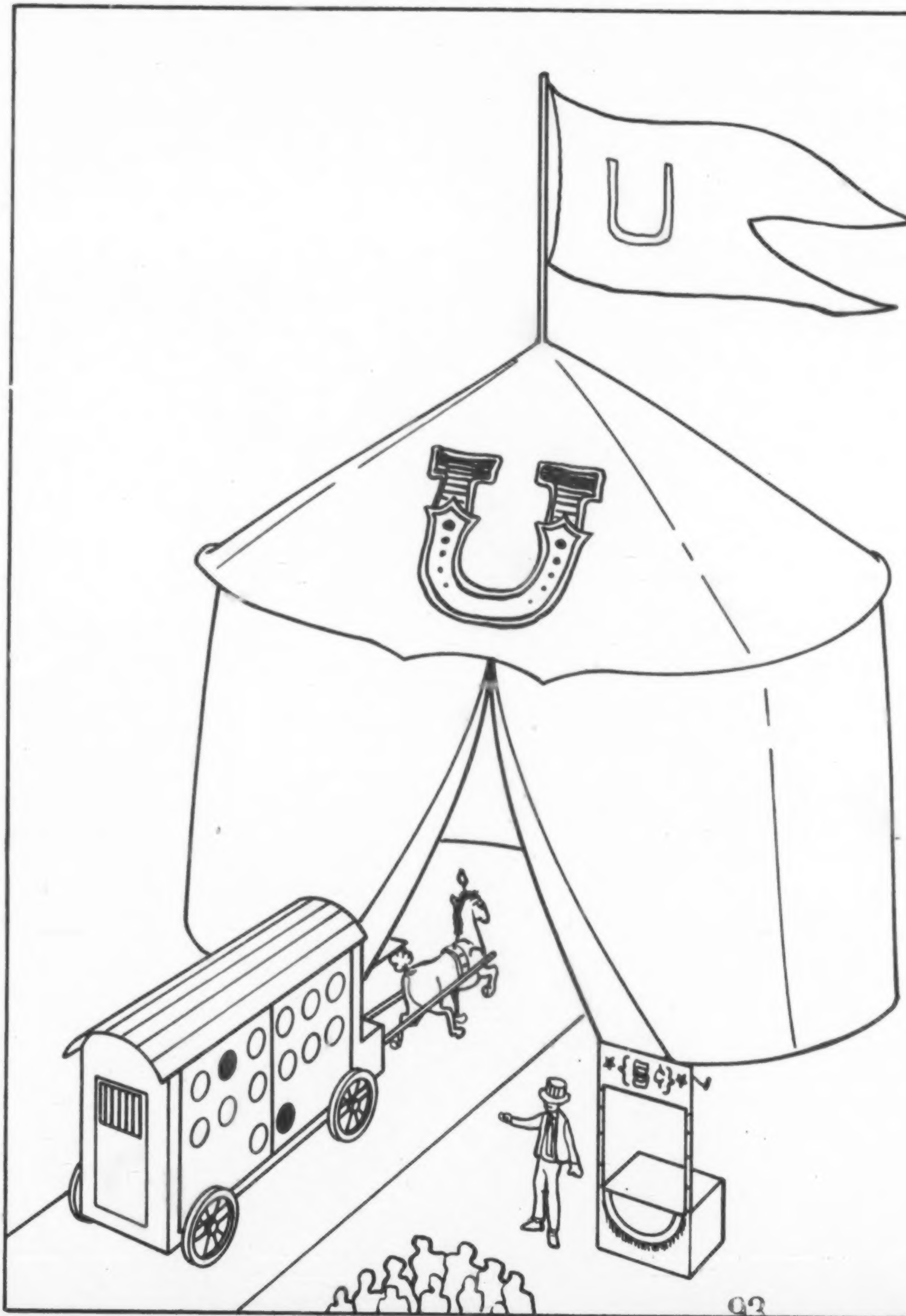
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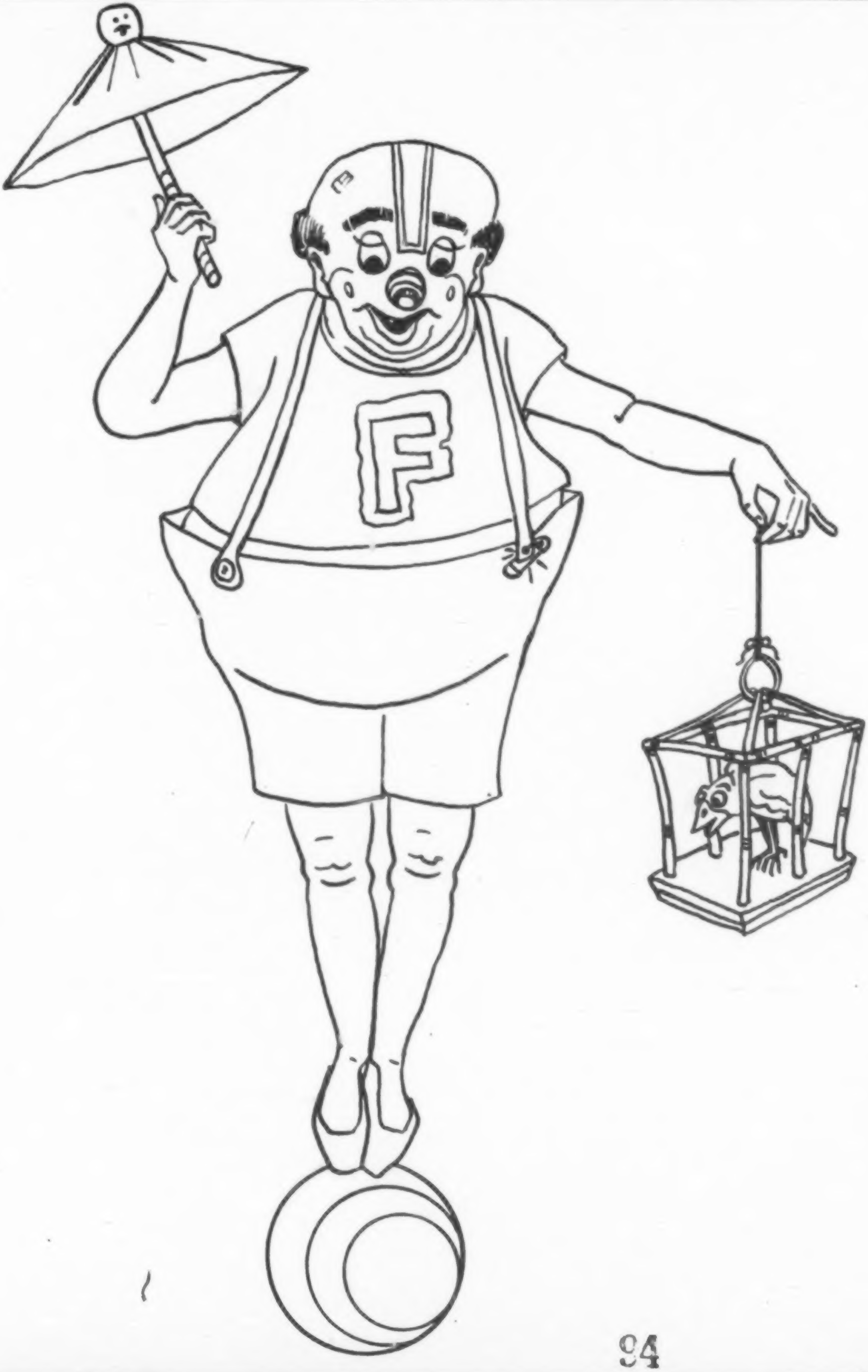
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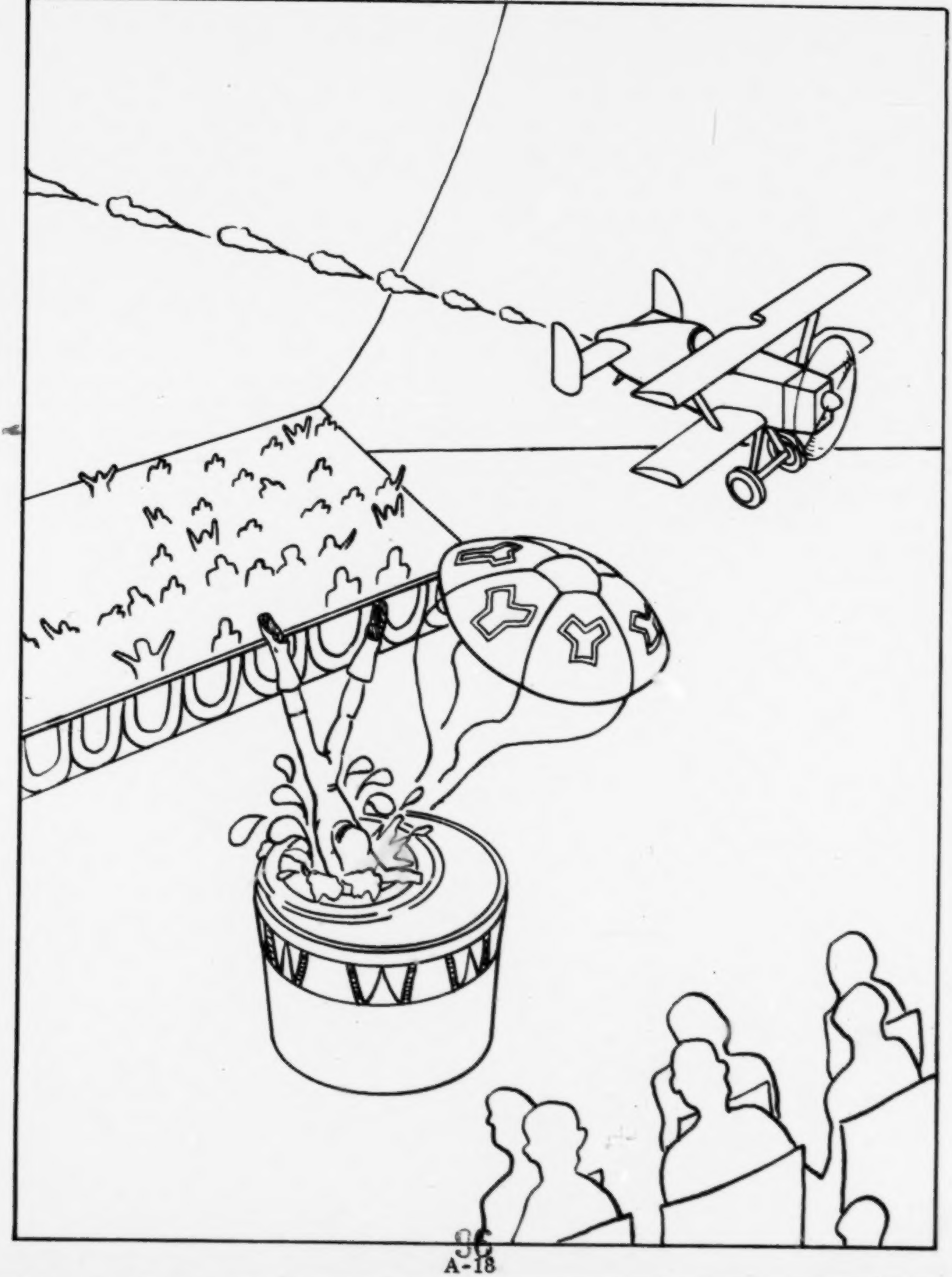

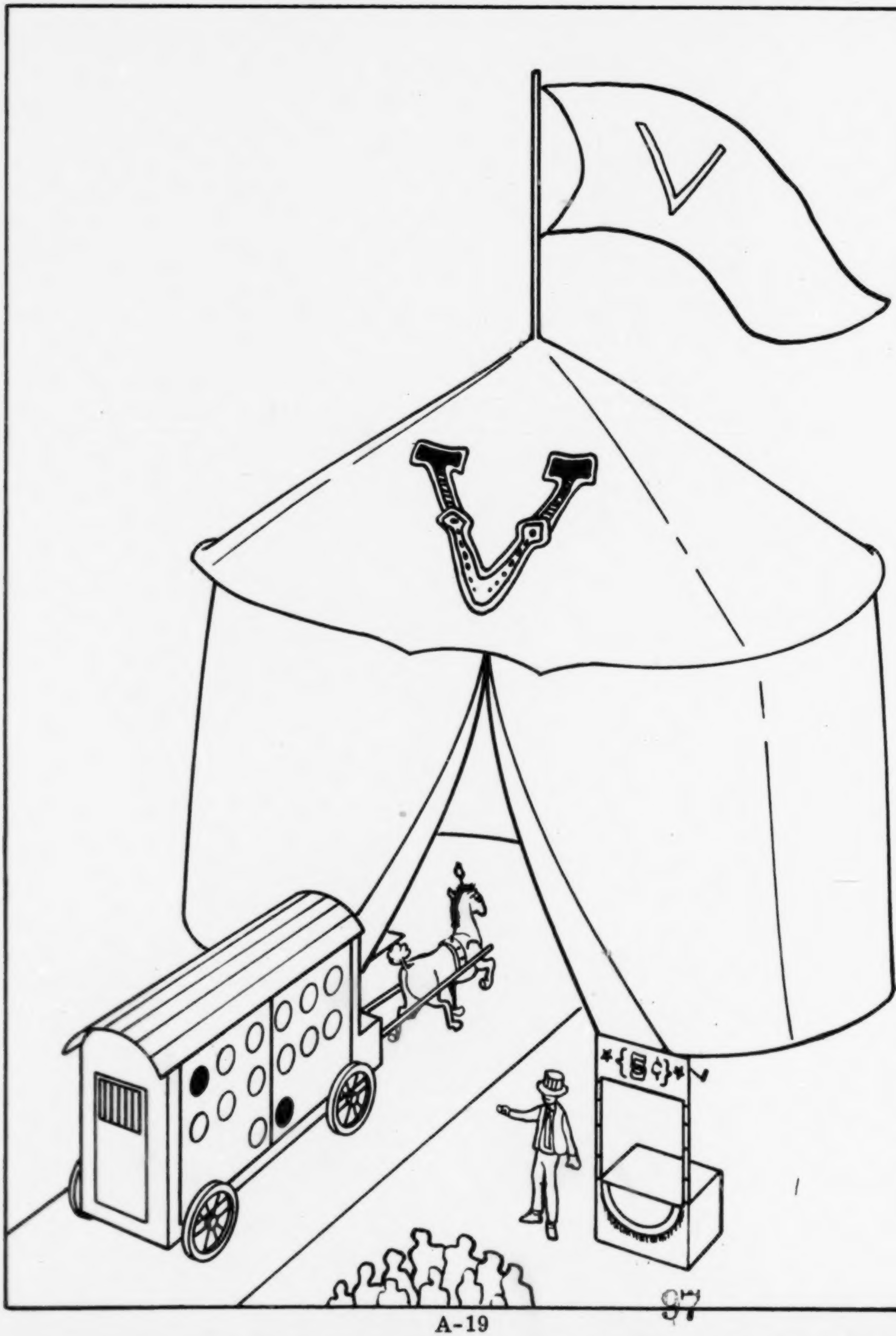
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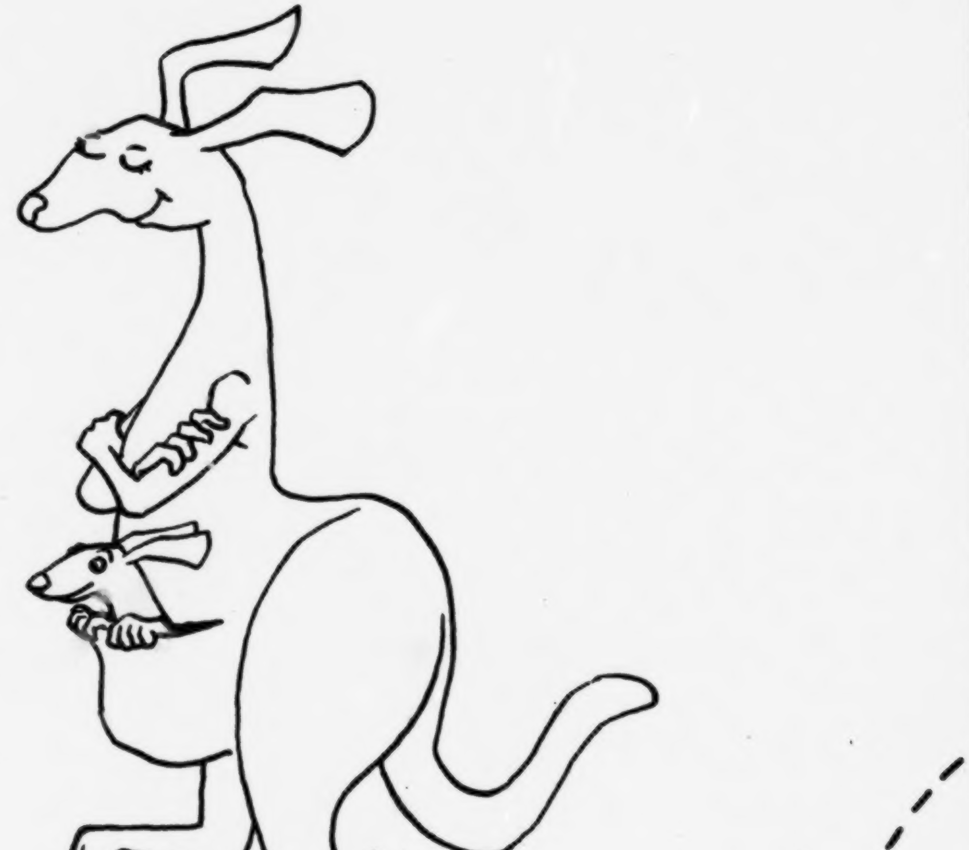

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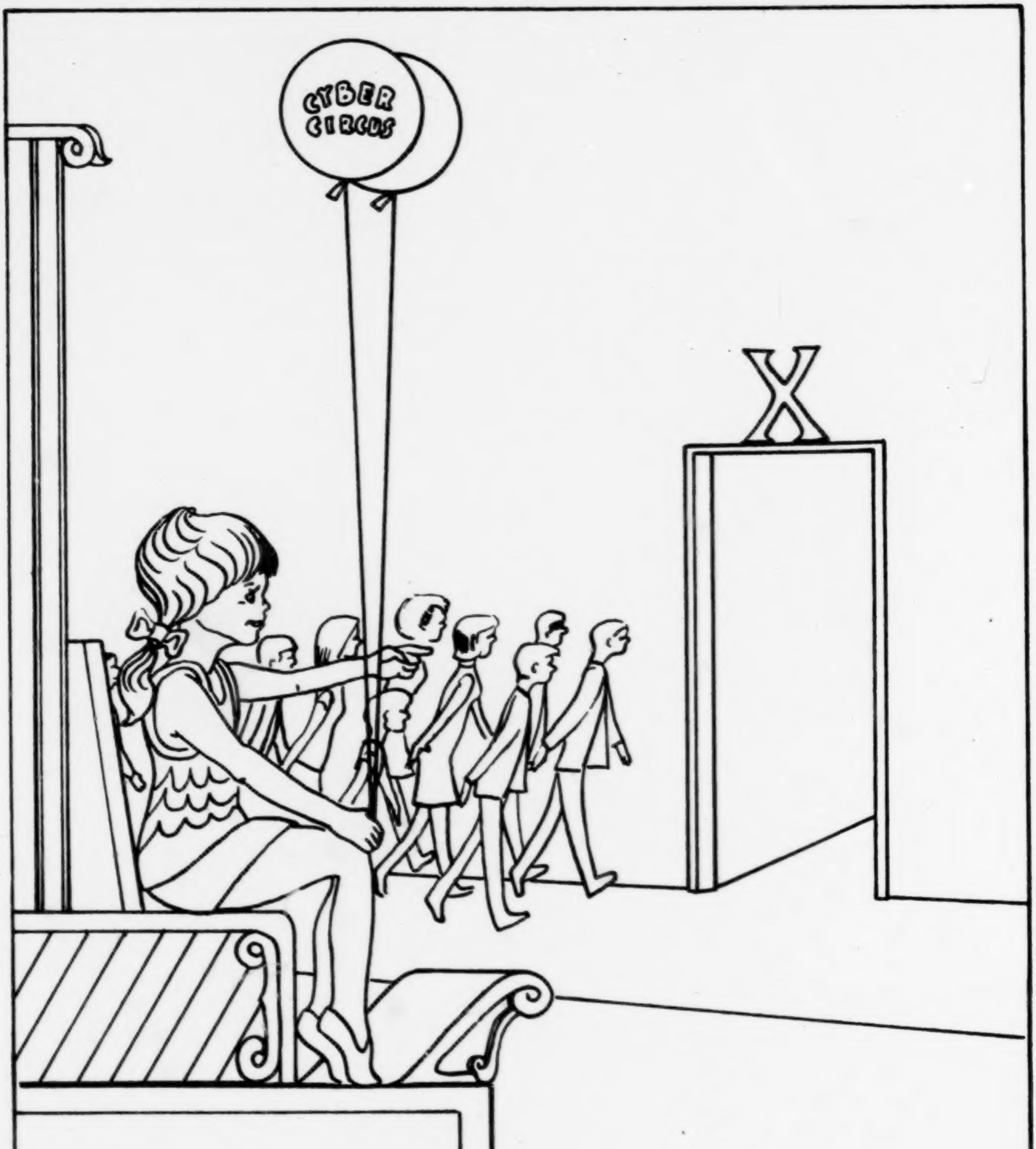
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SUPPLEMENTARY MATERIALS

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COPY AND COMPLETION EXERCISES

One, two, and three letter words are used in this particular set of copy materials to provide the student with extensive practice on new letters. Word lists are arranged for each letter group in the "Cybertype" code. Each word list employs letters from its letter group and from those groups previously introduced to the student.

Letter Group: E, T, A, O, N, I

A
I
AT
ON
IN
IT
NO
TEN
NOT
EAT
TON
OAT
TEA
TOE
TIE
INN
ATE
ONE
TIN
NON
TAN
NET
TEE
ION

Letter Group: R, S, H, D, C, L, M

DID
SHE
RAN
AND
HIT
HER
HIS
SAD
HOT
MAT
MID
CAT
COT
HAD
THE

DAD
END
SEA
SEE
AIR
RAT
RED
MEN
HEN
LET
LIE
CAN
DOC
HAS
CAR

Letter Group: U, F, P, Y, B, G, W

bug
mop
bow
pup
rug
pop
wee
bop
mug
cup
out
way
pug
boy
buy
gay
top

pay
ply
pig
bay
fly
run
gum
wig
bum
fun
fat
pun
got
sun
pat
pry
won

Letter Group: V, J, K, Q, Z, X

van
joy
fox
eve
keg
jam
vet
box
vim
jig
quo
zip

jag
zig
via
zoo
six
jab
ink
qua
kit
tax
vat
ave

Sample Fill-In Exercises

The following two pages provide examples of fill-in exercises. Similar work sheets may be constructed at your own discretion.

FILL IN THE BLANKS

Example: I ATE AN ONION

I BOUGHT___________

I BROUGHT__________

I PEELED __________

I COOKED___________

TYPE THE COLOR WORDS;
THEN COMPLETE THE SENTENCES.

RED

BROWN

PURPLE

BLUE

GREEN

YELLOW

BLACK

WHITE

ORANGE

WHAT COLOR IS IT?

1. LETTUCE IS ______________
2. BREAD IS ___________ OR ______________
3. BANANAS ARE ____________
4. BEETS ARE ______________
5. CARROTS ARE ____________

Exercises with Common Letter Groups

This section provides copy exercises with words and sentences employing common two- and three- letter groups.

PRACTICE ON THE "AND" LETTER GROUP

and
band
hand
land
sand
wand

brand
grand
strand
handle
sandal

Andy
dandy
handy
sandy
candy
andante

Hand Andy and Sandy a handle.

A grand band landed on the sand.

I sand and sand and sand a handle.

Andy has dandy sandals.

PRACTICE ON THE "AT" LETTER GROUP

at
bat
fat
eat
hat
oat
mat
pat
rat

sat
vat
brat
spat
flat
that
boat
float

ate
date
fate
gate
late
mate
slate
plate
berate

I eat.

A cat spat at the rat.

A cat sat in a hat on a mat.

I hate late dates.

PRACTICE ON THE "ING" LETTER GROUP

king
ring
sing
wing
fling
bring
sting
string
thing
wring
finger
singer
mingle
single
tingle
cringe
fringe

Bring the king a ring.
My ring finger tingles.
Sing, sing, single singer.
The king is singing and ringing a bell.
Let's go sliding and sleigh riding,
singing while we're swinging.

PRACTICE ON THE "TH" LETTER GROUP

than
thank
that
thaw
then
thief
thick
thimble
thin
thing
think
third
thirteen
thirty
this
thistle
Thomas
thorn
though
through
tough
threat
three
thrill
throat
throw
thumb
thunder
Thursday
bath
birth
both
death
earth
fourth
growth
health
math
path
strength
truth
with
wrath
youth

This is that thin thing.

I think this thimble is thicker than that thimble.

A thorn in the path threatened the growth and health and the strength of the youth.

PRACTICE ON THE "THE" LETTER GROUP

the
theater
thee
theft
their
them
then

theory
therapy
there
these
thesis
they
another

bathe
bother
brother
either
ether
father
heather

mother
other
rather
smother
weather
whether
wither

The cat sat in the hat on the mat.
They like the hat of the other brother.
The ant ate the oat in the hat.

Exercises with Poems and Jingles

This section provides poems and jingles for children to copy. Many children find such poems fascinating, and these exercises provide additional practice in producing repetitive letters and words.

LIONS LEAPING LIONS

LEAPING LIONS LEAPING

LEAPING IN THE GRASS

LEAPING HERE LEAPING THERE

A MILLION TOMATOES

A MILLION TOMATOES

TOMATOES RED RED RED

I SHALL EAT A RED RED RED
    TOMATO

A CAT IS A CAT,

IS A CAT, IS A CAT

AND THAT IS THAT, IS THAT

IS THAT IS THAT,

AND THAT IS A CAT,

IS A CAT, IS A CAT,

AND THAT IS THE END OF THAT,

THAT CAT.

A LOOSE TOOTH

IS A SERIOUS MATTER

IN A MEAN ANIMAL.

HE CAN DREAM

A MILLION DREAMS

AND NOT CATCH

A SMALL SMELL OR

TASTE A TENDER MORSEL.

B-19

COPY EXERCISES USING COMMON ABBREVIATIONS

MONDAY	MON.
TUESDAY	TUES.
WEDNESDAY	WED.
THURSDAY	THURS.
FRIDAY	FRI.
SATURDAY	SAT.
SUNDAY	SUN.
MARYLAND	MD.
VIRGINIA	VA.
DISTRICT OF COLUMBIA	D.C.
PENNSYLVANIA	PA.
JANUARY	JAN.
FEBRUARY	FEB.
MARCH	MAR.
APRIL	APR.
AUGUST	AUG.
SEPTEMBER	SEPT.
OCTOBER	OCT.
NOVEMBER	NOV.
DECEMBER	DEC.

"CYBERTYPE" WORD LIST

This section provides lists of commonly used words arranged for each letter group in the "Cybertype" code. The order of presentation for letters within each letter group is consistent with the presentation order for letters in the Instruction Manual for 14-key, "Cybertype" dual-input systems. These word lists can readily be used with the 7-key "Cybertype" system, although the presentation order for letters within each letter group differs slightly from that given in this section.

Word lists for each letter are based on other letters in the same group, or on letters in groups previously introduced. After teaching a complete letter group (e.g., "R, S, C, H, L, D, M"), the word lists for each letter in that series may be used as a source for further practice.

This section is also intended for use in the composition of sentences, and should be particularly helpful in practice and reinforcement of the letter-keying code in the early stages of instruction with the "Cybertype" system.

Letter Group: E, O, T, N, A, I

a
I
at
ate
to
too
eat
tea
toe
toot
an
neat
no
ant
none
noon
not
on
note
teen
in
nit
tie
ten
one
nine
in
it
ion
iota
tint
tent
ton
tan
tin
nation
attention

Letter Group: R, S, C, H, L, D, M

R

air
are
ear
enter
entire
eraser
iron
near
nor
or
rain
ran
rat
roar
root
rotten
tear
tire
tore
torn
train
tree

S

also
as
easiest
east
Easter
interest
is
its
nearest
nest
noise
nose
reason
rest
rinse
roast
rooster
rose
sat
seat
season
sea
see
seen
sent
set
sir
siren
sister
sit
snore
so
soon
sore
stain
stairs
star
start
station
stone
store
street
taste
tease
test
toast

C

accident
ace
ache
across
act
can
cane
cannot
car
carrot
card
care
case
cash
cat
catch
cent
center
chain
chair
chance
chase
cheat
chin
choice
choose
chosen
coal
coat
cocoa
cone
corn
corner
cost
cross
dance
doctor
each
ice
nice
ocean
once
race
reach
rice
rich

H

another
earth
either
hair
has
hat
hate
he
hear
heart
heat
hen
her
here
hi
his
hit
horn
horse
hose
hot
neither
north
oh
other
rather
share
she
sheet
shine
shoe
shoot
short
than
that

the
their
then
there
these
this
thin
these
three
threat
tooth

L

all
alone
call
calm
careless
child
children
chocolate
circle
class
clean
clear
close
cloth
clothes
cold
color
cool
cradle
doll
dollar
electric
else
hall
hell
hello
hill
hold
hole
lace
laid
land
last
late
later
lead
learn
leather
led

lesson
let
letter
lie
line
lion
listen
little
load
loose
lose
lost
lot
nails
old
real
roll
sail
salt
school
sell
shall
shell
sold
soldier
steal
still
tail
tall
tell
till
told

D

ad
add
address
and
dad
dare
date
dead
dear
deer
dentist
did
die
dinner
dirt
dish
distant
do
does
done
door
dot
dress
dried
end
had
hand
hard
head
heard
hid
hide
idea
indoors
inside
instead
need
nod
order

radio
read
red
ride
read
rode
road
sad
said
sand
seed
send
side
stand
stood
third
tired
trade
tried

M

am
almost
animal
arm
came
chimney
Christmas
climb
come
cream
dime
dream
ham
hammer
him
home
ice cream
lemonade
made
mail
mailman
mama
man
march
matter
me
mean
meat
medicine
meet
melt
men
mend
met
middle
mile
mill
million
mind

mine
mint
mirror
miss
mom
moment
month
moon
more
most
mother
Mr.
Mrs.
name
room
same
seem
slam
small
smell
smile
some
sometime
stomach
storm
team
them
time
tomatoes

Letter Group: U, F, B, P, G, Y, W

U

about
aloud
around
aunt
cause
church
circus
cloud
clue
count
course
cousin
cruel
cure
curtain
cushion
cut
cute
discuss
dust
hour
house
hundred
hunt
hurt
lettuce
loud
lunch
measure
minute
mountain
mouse
mouth
much
muscle

F

afraid
after
afternoon
calf
careful
chief
different
face
fair
fall
fan
far
farm
farmer
fast
fat
father
fear
feather
feed
fell
felt
fence
field
fill
find
fine
finish
fire
first
fish
fit
flies
float
floor

B

automobile
babies
baby
bad
ball
balloon
banana
band
barn
bat
bath
bathe
be
beans
bear
beat
beautiful
because
bed
bee
been
beer
before
behind
bell
bend
beside
best
better
bicycle
bill
bird
birthday
bit
bite

U

music
muss
must
number
nurse
nut
our
out
outdoors
outside
round
ruin
run
rush
should
shoulder
shut
sound
south
such
suit
summer
sun
sure
thousand
touch
true
turn
turtle
uncle
under
until
us
use

F

food
foot
for
forth
found
four
free
fresh
fried
friend
from
front
fruit
full
fur
furniture
half
herself
himself
if
leaf
left
life
lift
of
off
office
often
roof
self
soft

B

bleed
bless
blood
blue
board
beat
body
bone
born
both
bottom
boy
branch
bread
broom
brother
brush
build
built
bumblebee
bump
burn
burnt
burp
bus
busy
but
butcher
butter
butterfly
button
buy
by
double
habit
lamb
rabbit
remember
ribbon
rob
robin
rub
rubber
table
thumb
tub
umbrella

P

airplane
apple
camp
cap
captain
cup
cupboard
deep
dope
drop
elephant
help
hop
hope
lamp
lap
leap
lip
nap
open
pail
pain
pair
pal
pan
pants
papa
paper
parade
parents
part
pass
past
paste
pat
path
peach
peas
peel

piano
picnic
picture
pie
piece
pin
pipe
place
plain
plant
plate
please
point
pond
policeman
poor
pop(corn)
porch
post
pot
potatoes
pound
press
pull
put
shape
sheep
ship
shop
sleep
slip
soap
space
spoon
spot
spread
step
stop
supper

G

again
against
age
ago
along
angel
angry
anything
bag
bandage
began
begin
begun
belong
big
bought
bright
bring
brought
building
bug
change
cough
danger
dig
dining
dog
drug
edge
egg
eight
engine
enough
fight
finger
flag
forget
forgot
frog

gate
get
ghost
gift
giraffe
girl
glad
glass
go
goat
goes
going
gold
golden
gone
good
goodbye
gorilla
got
grade
grain
grandfather
grandmother
grape
grass
gray
great
green
grocery
ground
guess
guest
gum
hang
high
hung
hungry
large
laugh

neighbor
night
nothing
orange
page
pig
rag
right
ring
rug
sign
something
song
spring
sting
straight
string
strong
sugar
though
thought
through
together
tongue
tough
ugly

P

pen
pencil
people
pet
suppose
surprise
top

G

gallon
game
garage
garden
gas
leg
light
long
might
morning

Y

already
any
candy
city
company
copy
country
crayons
cry
day
dirty
dry
early
easy
empty
eye
family
fly
funny
happy
hurry
lady
lay
many
may
money
my
myself
only
party
pay
penny
play
pony
pretty
puppy
ready
say
silly
today
toys
try
way
yard
year
yes
yesterday
yet
yell
you
sorry
stay
story
they
thirsty

W

allow
always
answer
away
awful
between
blow
bow
bowl
brown
clown
cow
crowd
crown
down
draw
drawer
fellow
few
flower
follow
grew
grow
how
low
new
now
own
pillow
row
sandwich
saw
sew
shadow
show
slow
snow
sweat
sweater
towel
town
twelve
twenty
two
wagon
wait
wall
want
war
warm
was
wash
waste
watch
water
we
wear
weather
wedding
well
went
were
west
wet
what
wheat
wheel
when
where
whether
which
while
whisper
white
who
whole
whom
whose
will
win
wind
window
wing
winter
wish
witch
with
without
woman
women
wonder
wood
wool
word
wore
world
worry
would
wrap
write
wrong
yellow
sweep
sweet
throw
tomorrow
why
wide
wig
wild

Letter Group: V, J, Q, K, Z, X

V

above
alive
believe
brave
cover
dive
drove
eleven
evening
ever
every
everything
five
gave
give
glove
have
heavy
leave
leaves
live
love
move
never
over
overalls
prove
river
save
serve
seven
several
shave
shiver
stove
twelve
valley
vanilla
velvet
very
vine
voice
wave
weave

J

jail
jam
jar
jelly
job
join
joy
jump
just
pajamas

Q

quack
quarrel
quarter
queen
question
quick
quiet
quite
square
squash
squeak
squirrel
squirt

K

ask
awake
awoke
back
bank
bark
basket
beak
bike
black
blackboard
book
break
breakfast
brick
broke
cake
check
cheek
chicken
clock
cook
cookie
crackers
creek
dark
drink
duck
fake
fork
handkerchief
joke
keep
kept
key
kick
kill
kind
king
kiss
kitchen
kitten
knee
knew
knife
knock
know
lake
like
lock
look
make
mark
market
milk
monkey
napkin
neck
nickle
park
peck
pick
pickle
pocket
rock
sack
shake
shook
sick
silk
skates
skin
skirt
sky
smoke
snake
socks
speak
spike
spoke
steak
stick
stocking
strike
suck
take
talk
thank
Thanksgiving
thick
ticket
took
truck
wake
walk
week
work

Z

breeze
buzz
crazy
dozen
freeze
frozen
fuzzy
jazz
lazy
prize
puzzle
quiz
raze
size
sneeze
waltz
zebra
zero
zipper
zoo
zoom

X

axe
box
except
excited
expect
exit
fix
fox
mix
next
six
taxi

"CYBERTYPE" PRACTICE SENTENCES

The following sentences are designed to emphasize and reinforce the learning of newly introduced letters. For each letter (with the exception of E, O, T, N, A, I), there are at least four sentences, each sentence using the pertinent letter a minimum of three times, and using with it only those letters from the same "Cybertype" letter group previously introduced.

To further supplement your activities, you may want to compose similar sentences by referring to the "'Cybertype' Word List" in the preceding section.

Note: Where possible, emphasis should be placed on the development of student creativity by encouraging students to compose their own sentences with their "Cybertype" systems, using the sentences in this section as models.

PRACTICE SENTENCES FOR THE E-O-T-N-A-I "CYBERCODE" SERIES

(Use after entire series has been introduced)

E,O,T,N,A,I

I ate at ten.

I eat one onion.

An ant ate an oat.

At noon I eat in a tent.

A neat teen ate a tan onion in a tin.

I note a nation at attention.

PRACTICE SENTENCES FOR THE R-S-C-H-L-D-M "CYBERCODE" SERIES

(Use after the entire series has been introduced)

R

A rear tire tore.

A rat ran under a tree.

Aaron ran near a train.

An iron train ran into a rotten tree root.

I enter an eerie terrain.

S

Teens sit on seats.

Toss Rose a stone.

Roast toast is in season.

Sara Stasson stores onions in a stone seat.

A senior senator starts a sensation.

C

He can catch a cat.

A car can coast.

Cocoa costs ten cents.

Cora can dance the cancan.

A cat can catch a roach.

Richard Rice cheats at cards.

H

She has his hose.

He has thin hair.

He has three shoes.

The hen hit the horse on the shoe.
(Emphasizing THE)

He harnesses his horse at the station.

L

Tell Ellen to call.

A late lad eats less.

Let a child lead the line.

Little Nellie lost her doll.

Tell Tillie a tall tale.

Elsa is a real cool doll.

D

Dad had a red radio.

Hand Dot a dish.

A sad dad had a hot head.

Dad and Ed stand in the sand.
(Emphasizing AND)

The distant dentist does not season his roast hen.

M

Mom made me a mitten.

I smell some meat.

Tell him to come home.

Tom marched almost ten miles.

Mrs. Moon made creamed meat.

A calm clam came late.
(Emphasizing C, L, M)

PRACTICE SENTENCES FOR THE U-F-B-P-G-Y-W "CYBERCODE" SERIES

(Use after the entire series has been introduced)

U

Stu could use us.

The nurse rushed us out.

Cut a rut under our cute house.

Uncle Curt runs around our church each hour.

Let us discuss musical matters.

F

A fat father fans his face.

Find a foot of felt.

Flat feet often fall.

Find Fran a full loaf.

I fear a fish fell off the roof.

B

Boy babies bite better.

Bill built a blue boat.

Baby Bess bit her rubber rabbit.

Bob rubbed his bruised bottom.

Beer and beans made Mable burp.

P

Pat planted peas in a pot.

Please pass Paul a pail of paint.

Peter sleeps up on top of a piano.

Pam helped Pat peel potatoes.

Pop slipped and dropped his piece of apple pie.

G

Go get a big bag.

A big ugly pig got angry.

Eggs get bigger in spring.

Gail Higger gets green grape gum.

Angry angels fight grog and eggnog.

Y

Sally yells all day.

Fay can only pay a penny.

Dirty dry crayons made Mary cry.

If you do not pay today you may be sorry.

My city already has a candy company.

W

How now brown cow.

Wild winter winds blow.

We will wash with water.

Willie wants to win a new watch.

Wanda wore a yellow wool wig.

PRACTICE SENTENCES FOR THE V-J-Q-K-Z-X "CYBERCODE" SERIES

(Use after entire series has been introduced)

V

I shave every evening.

Brave beavers love to dive.

Give Victor five heavy gloves.

Eve and Harv have every vote.

I have never lived over a valley.

J

Jane just jumped.

Jolly Jimmy enjoys jam and jelly.

John juggles juicy objects.

Major Johnson joined a banjo band.

Q

Quit quarreling and be quiet.

The quiet queen requires a quilt.

Form a square quickly and quietly.

A squirrel squeaked and squirted squash.

K

Jack took his bike back.

Kate kissed her black kitten.

I like to bake cakes and cookies.

Dick picked a peck of pickles.

Z

Bees buzz and zoom lazily.

I need a dozen large size zippers.

The zebra waltzed with the fuzzy bear.

In winter Suzie wheezes and sneezes and freezes.

X

Fix a box for the fox.

Rex will be six next week.

I see six taxis at the next exit.

An anxious axman expects a maximum of sixteen.

TOPICS FOR CREATIVE WRITING

(Note: Suggest these topics only after all letters, symbols, and functions in the "Cybercode" have been introduced).

Once there was a little boy who loved (popsicles) . . .

One day when Bobby got home from school he found an enormous ______________ on the doorstep . . .

Once upon a time there was a family of purple caterpillars . . .

Once I found . . .

Once a ________________ lived deep in the woods . . .

Once in a far away land . . .

Once upon a time long, long ago . . .

Deep in the jungle, on the top of a great big tree . . .

PERSONAL TOPICS FOR ORIGINAL WRITING

My friends . . .

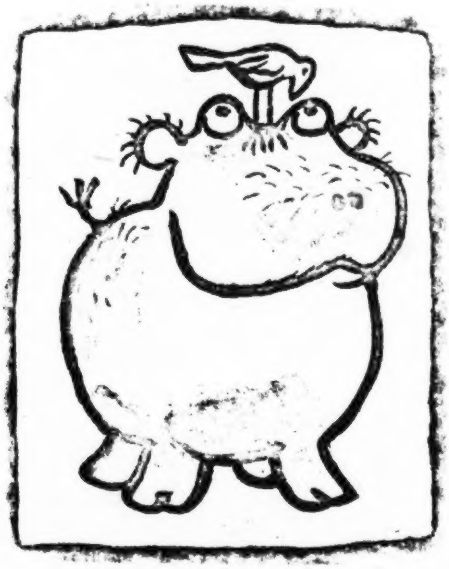
My family . . .

My favorite things . . .

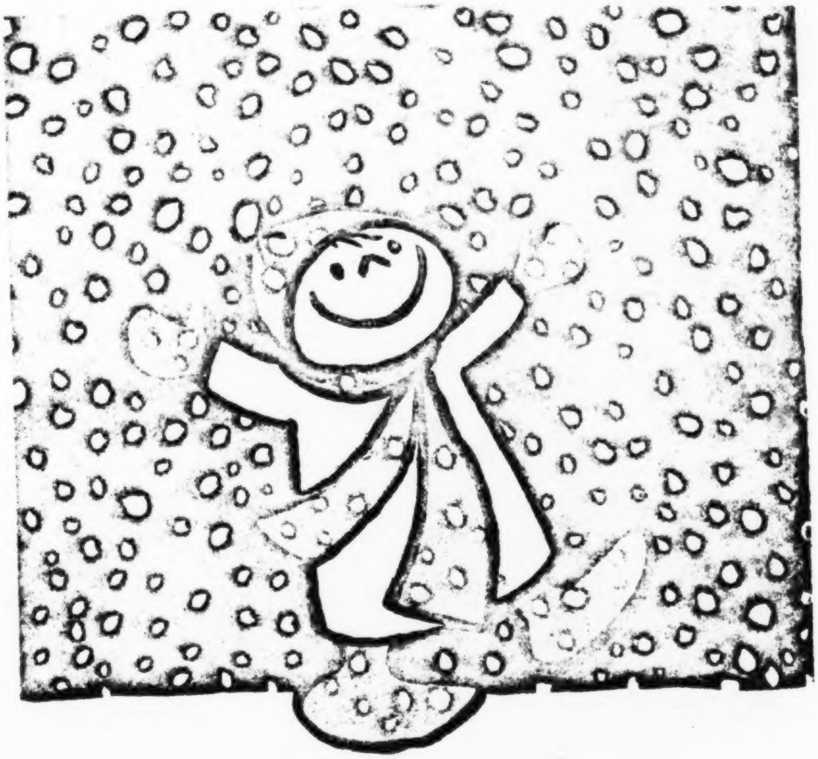
My favorite foods . . .

Me . . .

WRITE A STORY.



WRITE A STORY.



Imagine . . .

a green froggy all soggy

a sleepy sloth waked by a moth

a turtle gruff in a huff

playing in the hay today

having peanut butter on your shutter

a hug from a bug

Use your imagination to "Cybertype" a story about one of the above topics.

Imagine that the following things have happened to you. Tell what you did.

What happened when you clucked at a duck?

What happened when you bonged on a gong?

What happened when you slipped on a ship?

What happened when you got muddy with a buddy?

What would we see if . . .

we visited the zoo?

we went to a farm?

we went to a supermarket?

we went to a theater?

we toured an art museum?

we went to school?

we went to the beach?

we visited your house?

What would happen if . . .

everyone in the classroom talked at once?

the clock in your house didn't work?

you left a dog and some hamburger alone in the same room?

someone brought a little snowman into the room and set it on his desk?

everything fell up instead of down?

the bell at the end of your recess period didn't ring?

the sun continued to shine all night long?

CREATIVE ANSWERS

Think of and list 5 things you could do with . . .

a paper napkin

clothespins

a long piece of wire

a catalog

a wash cloth

a big box

a tiny box

toothpicks

a magazine

an old plastic tablecloth

a twig

a hook

a piece of rope

a paper clip

empty orange juice cans

marshmallows

CREATIVE ANSWERS

List all the things you can wear on your hands.

List all the things you can wear on your feet.

List all the things you can think of that are red.

List all the things you can think of that are hot.

List all the things you can think of that are shaped like a triangle.

List all the things you could do with your nose.

LANGUAGE BUILDING EXERCISES

(Note: These exercises should be used only after children have learned the entire letter-keying code).

SYNONYMS

Synonyms are words that have the same meaning.

Type these sentences using a synonym for the underlined word.

Example: That woman is my mother.
Answer: That lady is my mother.

1. I gave the letter to the postman.
2. My dad went to work.
3. Joe cannot find his galoshes.
4. The lad is ten years old.
5. The sunset was pretty.
6. The puppy ran across the street.
7. The bird flew toward the nest.

ANTONYMS

Antonyms are words that have opposite meanings.

Here is a list of paired words. Some are opposites (antonyms) and some are not. Choose the antonym word groups and type them.

Example:	work, play
Answer:	work, play
Example:	tiny, wee
Answer:	(do not type anything)

1. hot, cold
2. fish, feet
3. big, little
4. fast, slow
5. fun, games
6. angry, happy
7. cry, weep
8. white, black
9. dry, wet
10. all, none

HOMONYMS

Homonyms are words that sound alike.

Type the words that sound alike in each set.

Example: bore, born, boar
Answer: bore, boar

1. fur, for, four
2. your, our, hour
3. to, toe, two
4. mane, main, mean
5. soar, sour, sore
6. so, sew, sue
7. sun, sin, son
8. at, ate, eight
9. see, so,sea
10. scene, son, seen

How many words can you type using only the letters in the word DICTIONARY?

Type them. (You may use the same letter more than once.)

How many words can you type using only the letters in the name CHARLIE BROWN?

Type them. (You may use the same letter more than once.)

Which month is it?
(Type your answer.)

- January
- February
- March
- April
- May
- June
- July
- August
- September
- October
- November
- December

____

How many words can you type using only the letters in the name of this month? Type them.

COMPLETE THE RHYMES

ON THIS PAGE

Worms wiggle.
Girls ______________.

Sheep sleep.
Lions ______________.

I climb a tree
To see the __________.

He will float
Beside the __________.

I sat on a ledge
To cut the __________.

He sat still
As he rode down the __.

I have a rock
In my ______________.

I like jam
With my ____________.

See the locks
On the _____________.

It has a crack
In _________________.

Quick kittens
With muddy ________.

It was a joy
To see the __________.

WORD BUILDING EXERCISES

Form words by using the following letters to fill in the blanks.

t n r s h d c l m

_in
_in
_at
_at
_ate
_ate

_ain
_ain
_an
_an
_oat
_oat

_ot
_ot
_eat
_eat
_ean
_ean

_one
_one
_am
_am
_eam
_eam

COMPLETION EXERCISES

Complete the last word in each line, and type the sentences.

1. Mother has a pretty r________.
2. Bob plays with his d_________.
3. Susan can read a b__________.
4. Tom works with a s_________.
5. Jack wants a b______________.
6. Larry rides in a c__________.
7. Tom can fly his k___________.

"B" WORDS

Arrange and type these words in alphabetical order.

bike

bird

barn

ball

bat

bear

book

bed

Copy these sentences; fill in the missing words from the list above.

1. You sleep in a _____.
2. Cows live in a _____.
3. You read a ________.
4. You may find a _____ in the zoo.
5. You hit a ball with a _____.
6. The boy rides his _____.
7. A _____ can fly.

"K" WORDS

Think of a word that begins with "K", and type your answer.

1. It is a girl's name. _______
2. It can fly high on a windy day. _______
3. It is soft and small. _______
4. It can jump very far. _______
5. You can unlock a door with it. _______

"L" WORDS

Type only the names of things that grow, choose them from this list.

leaf

letter

laugh

lamp

lock

lamb

light

lion

leg

"L" WORDS

Type only the names of things that grow, choose them from this list.

leaf

letter

laugh

lamp

lock

lamb

light

lion

leg

What goes with this word?

shoes

bread

mother

sister

hot

sun

fork

bacon

cat

cake

work

NUMBERS AND MATH SYMBOLS

(Note: These exercises are to be used only after students have learned the entire letter-keying "Cybercode.")

1. **Number Practice**

1 2 3 4 5 6 7 8 9 10

10 20 30 40 50

60 70 80 80 100

91 28 73 46 50

1950 1960 1970

2. **Number Sentences**

1 and 1 are ________

2 plus 3 is ________

4 minus 2 is ______

Today is ______________________________
month day year

Count to ten:

___ ___ ___ ___ ___ ___ ___ ___ ___ ___

ADDITION:

1 + 1 = ___
2 + 2 = ___
3 + 3 = ___
4 + 4 = ___
5 + 5 = ___
6 + 6 = ___
7 + 7 = ___
8 + 8 = ___
9 + 9 = ___
10 + 10 = ___

1 + 2 = ___
3 + 4 = ___
5 + 6 = ___
7 + 8 = ___
9 + 10 = ___

SUBTRACTION:

6 - 5 = ____

8 - 3 = ____

7 - 3 = ____

9 - 2 = ____

7 - 5 = ____

3 - 3 = ____

9 - 8 = ____

24 - 24 = ____

24 - 20 = ____

24 - 4 = ____

268 - 268 = ____

268 - 0 = ____

3895 - 1 = ____

MULTIPLICATION:

3 x 4 = ____

6 x 4 = ____

7 x 3 = ____

4 x 5 = ____

2 x 8 = ____

3 x 8 = ____

5 x 1 = ____

5 x 7 = ____

6 x 6 = ____

7 x 4 = ____

9 x 5 = ____

2 x 3 = ____

DIVISION:

10 d 5 = ____

8 d 4 = ____

9 d 3 = ____

12 d 3 = ____

21 d 7 = ____

15 d 3 = ____

32 d 4 = ____

4 d 1 = ____

20 d 5 = ____

MATH PRACTICE:

2 + 4 = ____

3 + 7 = ____

10 + 5 = ____

32 - 2 = ____

49 - 9 = ____

26 - 6 = ____

4 x 2 = ____

6 x 3 = ____

29 x 1 = ____

6 d 3 = ____

10 d 2 = ____

16 d 4 = ____

25	400	444	869
+33	+200	-222	-634

8	4	3
x3	x7	x1

Place the Correct Math Symbol in the Circle:

2 ○ 2 = 4

10 ○ 9 = 1

3 ○ 4 = 12

7 ○ 5 = 2

5 ○ 6 = 11

15 ○ 5 = 3

6 ○ 1 = 7

8 ○ 4 = 2

10 ○ 1 = 11

24 ○ 24 = 0

14 + 0 ○ 14

9 + 2 ○ 11

LETTERS, PUNCTUATIONS, AND NUMERALS

INTEGRATION EXERCISES

The copy exercises on the following pages employ all the functions taught in the "Cybertype" code. Each function is used at least twice, while the more common functions are used repeatedly.

eotnai rschldm ufbpgyw vjqkz.x

(Sp)ruv esfj ocbq thpk

nlgz ady. imwx

1234 4321 567 765 890 098

0 1 2 3 4 5 6 7 8 9 10

5 24 361 7000 89

/ ? ' " ; : ! ? ! " ; / : '

= + - _ x d _ + - =

Cybernetics Research Institute

Isn't Joe's dog lost?

Aunt Mary said, "Happy Birthday!"

Twenty-three men, women, and children came to the party.

342 - 342 = 0

Men landed on the moon on 7/19/69.

The electric lamp was invented January 27, 1880, by
Thomas A. Edison.

10 + 2 = 12; 11 + 1 = 12

The quick king waltzes very exuberantly.

Dear Sir:

Shopping List:

2 loaves of bread

3 boxes of cereal

4 quarts of milk

5 bananas

6 eggs

7 slices of ham

8 oranges

I have chocolate, vanilla, and strawberry;
which do you want?

Do you want nuts too?

Yes, please.

Thank you, Mrs. Sands.

This is another way to write a date. It is shorter and uses only numerals.

Using January 26, 1972 as an example, follow Steps 1 through 5 to write it the short way on your "Cybertype."

Step 1:	**January is the first month; call it "1."**
Step 2:	**Make a slash.**
Step 3:	**Put the numeral date of the month (26).**
Step 4:	**Make another slash.**
Step 5:	**Then type the last 2 digits of the year (72).**

Answer: 1/26/72

How would you write February 14, 1965, the short way?

Type today's date the short way.

Type your birthday this way, too.

I am thirsty.

May I have a glass of water?

Thank you, Mother.

What did Debbie have in her purse?

She had 2 combs, a mirror, 7 bobbi pins,
6 tissues, and 45 cents.

I can't do that.

Don't touch the hot pot.

"I'm ready," said John.

"Ouch!" yelled Sally.

= - ' , / + _ " , ? ! ! !

Will you please open the door?

"I'm ready."

Thank you, Dad.

Hi, Cathy!

Nov. 23, 1970: 11/23/70

My brother is twenty-one!

"Hello, John!" called Randy.

"How about playing ball?"

John said, "I'd like to, but I can't right now."

"Which is blue? Joe's book, Mary's pencil, Judy's paper, or Bob's ruler?" asked Miss Mann.

"Bob's ruler!" answered Sue.

"My book is green," said Joe.

Dear Sir:

This is not the doll that I ordered. Please send the one that has red hair.

Thank you.

Sincerely,

Cybernetics Research Institute

Dear Sir:

This is not the car that I ordered. Please send the red one that costs ninety cents.

Thank you.

Sincerely,

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FREQUENTLY USED TWO AND THREE LETTER SEQUENCES AND WORD EXERCISES

(These exercises should be used only
after the entire "Cybercode" has been introduced)

The following word lists and practice exercises were developed for use in learning some of the basic phonetic components of words. They include such constructions as frequently used two and three letter sequences, prefixes and suffixes.

Practice with these exercises will not only increase the student's knowledge of and alertness to common phonetic components of the English language, but will also increase his proficiency on the "Cybertype." The letter groups mentioned herein occur frequently in written language. Practice in typing them can increase accuracy in typed communications by developing skill in the production of commonly occurring letter sequences.

In addition to providing the instructor with extensive word lists employing the above, this section also includes examples of exercises in which the student can use these letter groups to construct words, produce rhyming words, and compose short sentences. To supplement the above, you may choose to construct exercises similar to those included within this section.

WORD LIST

Based on Commonly Used Two-Letter Sequences

an

band
can
dandy
fan
man
panda
ran
sandal
tanning
van
wander
angry
angle
ant

ar

bar
card
ear
jar
mar
oar
par
tart
ware
hard

as

ask
task
gas
has
was
mass
last
sassy
grass
waste

at

battle
cat
eat
fat
hat
mat
Patty
rats
sat
sat
vat
that
what
ate

bl

black
blur
blimp
blot
blast
blink
bleed
blue
blood
bleek
block

br

brown
brush
broil
brew
breed
brine
brisk
bracket
brace

ch

chair
chap
chain
choke
chop
chill
chum
chow
chore
cheer
cheap

cl

clear
cloud
clown
clap
clip
clock
close
clans
class
claw
clean

cr

creep
crawl
cradle
crash
crept
cream
creek
cringe
crab
crab

de

hidden
tide
dead
decide
deal
depart
made
idea
deck
deck
deep
side

dr

draw
dry
drip
drawn
drizzle
drab
drop
drug
drown
drum
drink

dw

dwell
dwindle
dwarf
dwelt
dweller

ea

each
eager
peach
meat
heat
eat
neat
beach
beat
early
earn
earth
tea
hear
head
east

ed

fed
led
Ted
red
wedding
begged
looked
edit
ediface

en

dent
hen
mend
pen
pencil
ten
tent
tend
enemy
even

er

her
here
per
era
erg
ere
error
ever
every
very
seer
maker

es

best
essay
mess
pest
horses
porches
lesson
test
press
less
guess

fl

fly
fling
flip
flap
flour
flag
flat
flame
flesh
flea

fr

fry
fringe
freeze
froze
free
fruit
frail
fret
frog
frost

gl

glass
gleam
glare
glaze
glue
glum
glory
glimmer
gland
wiggle

gr

grip
grill
grab
grin
grape
greet
gray
green
grease
gripe

ha

had
have
hand
having
shad
hamper
shall
aha
hall
hair
has

he

he
she
the
they
them
there
then
other
brother
here
her
head
hero
help

in

in
into
hinder
ginger
fin
mind
win
tin
pinned
binge

io

portion
elevation
traction
action
section
attention
diction
friction
intention
fraction

is

his
miss
sister
dislike
list
mist
mister
hiss
listen
isle
this
iris
is

it

it
hit
bite
smith
kitten
sit
lit
fitted
write
write
itself
itch
edit

le

apple
isle
lent
let
ale
leader
puzzle
letter
leap
lean
leg
left
lei

nd

and
handle
band
candy
mend
tend
end
landing
send
fund

nk

ink
think
thank
rink
pink
stink
rank
dunk
skunk
mink
link

nt

ant
antler
tent
lent
pant
rant
mint
went
month
tint

of

of
often
lofty
soft
offer
coffee
toffee
off
oftentimes
aloft

on

on
onto
one
ton
bone
onion
tone
only
Monday
cone
once

or

or
nor
tore
sore
bore
for
orator
organ
poor
forty
oral
ore

ou

ouch
our
hour
sour
touch
pouch
four
pour
out
your
you
oust

ph

telephone
photo
physician
physics
phonetics
lymph
phrase
physical
phlox
phosphate

pl

place
please
plot
apple
plead
pleat
plate
plant
plaid
plenty

pr

pretty
present
prepare
prep
prefix
prof
prosper
preview
prepaid
precede

re

are
red
read
ready
prepare
treat
pretty
real
rare
mare

rt

tart
mart
part
start
flirt
cart
dirt
shirt
heart
curt

sh

ship
shall
hush
sheep
shake
mush
shape
sharp
shave
share
shell

sk

skate
skip
sky
skin
skill
skirt
skit
ski
skim
skull
ask

sl

slip
slide
slap
slur
sleep
slight
slim
slumber
slosh
isle

sm

smear
small
smart
smile
smack
smug
smoke
smuggle
smock
smell
chism

sp

spell
spurt
lisp
sport
spring
spry
speak
sprout
spool
wasp
clasp

st

stay
stem
steer
street
string
stung
strip
last
waste
style
first

sw

swam
swim
sway
swing
sweet
sweep
swell
swift
swat
answer

th

the
them
then
there
their
they
other
thing
think
that
with
this

ti

tin
till
until
time
tip
tight
tire
tide
tick
ting
untie

to

to
into
ton
tough
tote
too
onto
torch
total
tore
toll
atop

tr

try
trip
treat
trim
trust
troll
trend
travel
trill
trial
tray
entry

tw

tweed
twice
twig
twin
twist
twelve
twitch
twine
tweezers
twitter
twilight

ve

have
brave
love
wave
save
dove
vend
veteran
vex
vector
vermin
alive

wh

when
where
what
why
while
white
which
wheel
whisper
whether

FOUR-LETTER WORD LISTS

Based on Commonly Used Three-Letter Sequences

ack	ake	alk	all	alt	and	ane	ang	ank
back	bake	balk	ball	halt	band	bane	bang	bank
tack	cake	calk	call	malt	land	cane	fang	lank
lack	fake	talk	fall	salt	sand	mane	hang	rank
rack	lake	walk	gall	alto	wand	pane	gang	sank
pack	make	Salk	hall		hand	sane	rang	tank
	rake		mall			vane	sang	
	sake		tall					
	take							
	wake							

ash	ast	ate	eak	eam	ean	eap	ear	eat
bash	cast	bate	beak	beam	bean	leap	bear	beat
cash	fast	date	leak	team	lean	heap	dear	feat
dash	last	fate	peak	seam	mean	reap	fear	heat
lash	mast	gate	teak	ream	wean	neap	gear	meat
mash	past	hate	weak		dean		hear	neat
rash	vast	late					lear	peat
sash		mate					near	seat
		rate					rear	
							sear	
							tear	
							wear	
							year	

een	eep	eet	elt	ent	ill	ine	ing	ink
been	beep	beet	belt	bent	fill	dine	bing	link
seen	deep	feet	felt	cent	gill	fine	ding	mink
teen	keep	meet	melt	dent	hill	line	king	pink
keen	peep	keet	pelt	gent	kill	mine	ping	rink
	seep		welt	lent	mill	pine	sing	sink
				pent	pill	tine	wing	wink
				rent	sill	vine	zing	inky
				sent	will	wine		
				tent	bill			
				vent				
				went				

ite	oat	ock	ome	one	ope	ore	ote	own
bite	boat	cock	come	done	cope	bore	note	down
cite	goat	dock	dome	lone	dope	core	rote	town
kite	coat	lock	home	bone	lope	fore	tote	gown
mite	moat	mock	some	gone	mope	lore	dote	sown
lite	oats	rock			rope	more	vote	
rite		tock				pore		
		sock				sore		
						tore		

PREFIXES AND SUFFIXES

Prefixes

de

defeat
detour
deform
decade
demerit

dis

disown
disobey
disagree
dislike
disloyal

en

enjoy
enlist
enact
enroll
entitle

ex

exact
exceed
excite
excuse
exhale

con

concur
concede
conclude
confuse
conform

com

complete
comply
combine
compound
compact

in

inhale
inside
indent
incorrect
informal

pro

proceed
project
program
produce
prolong

re

recall
renew
remake
reopen
refresh

un

unable
unfit
untrue
unlace
unpack

pre

preview
precede
prepay
prewar
prepaid

Suffixes

al

postal
optical
critical
comical
personal

ance

allowance
assistance
acquaintance
disturbance
appearance

able

suitable
portable
available
payable
obtainable

ive

active
detective
defective
destructive
excessive

ful

careful
handful
painful
helpful
joyful

Suffixes (continued)

y	tion	ing	ment	less
airy	action	being	payment	careless
rainy	adoption	ending	amazement	useless
rocky	edition	going	excitement	worthless
sleepy	election	earning	employment	helpless
frosty	direction	feeling	pavement	fearless

ness	ly	ous
blindness	sickly	joyous
darkness	kindly	dangerous
likeness	yearly	perilous
sadness	costly	poisonous
goodness	lively	pompus

EXAMPLES OF WORD BUILDING EXERCISES

A
AL
ALL
TALL
TALLY

A
AL
AIL
TAIL
TRAIL

A
AN
PAN
PANE
PANES

A
AN
AND
ANDY
CANDY

A
AN
BAN
BAND
BLAND

A
AN
RAN
RANK
FRANK

A
AS
ASP
RASP
GRASP

A
AT
ATE
LATE
PLATE

A
AT
OAT
GOAT
GLOAT

A
AT
RAT
RATE
GRATE

I
IT
BIT
BITE
BLITE

I
IN
BIN
BING
BINGE

I
ID
SID
SIDE
ASIDE

I
IN
SIN
SINK
STINK

I
IN
TIN
THIN
THING

BE
BEA
BEAR
BEARD

ED
RED
REED
GREED
GREEDY

HE
THE
THEE
THERE

NO
NOT
NOTE
NOTED

ON
ONE
LONE
ALONE

OR
FOR
FORE
AFORE

TO
TOP
STOP
STOOP

RHYMING WORD LISTS

ate
rate
mate
date
plate
grate
state
great
wait

at
sat
mat
hat
rat
that
flat

ton
son
won
done
none
one
fun
pun
sun

in
tin
sin
pin
thin
shin
skin
win
chin

heat
meat
seat
eat
treat
wheat
sweet
meet
tweet

or
nor
tore
bore
door
poor
shore
store
pour
soar
floor

set
net
let
met
pet
fret
bet
wet

dine
line
mine
shine
whine
nine
fine
pine

"AND" WORDS

BAND
HAND
LAND
SAND
WAND
WANDER

BLAND
BRAND
GLAND
GRAND
STAND
STRAND

CANDY
DANDY
CANDLE
SANDAL
PANDA
VANDAL

"ING" WORDS

KING

RING

SING

WING

BRING

FLING

STING

STRING

THING

WRING

FINGER

SINGER

MINGLE

SINGLE

TINGLE

SENTENCES EMPLOYING COMMONLY USED TWO-LETTER SEQUENCES

The clown slid and stumbled.

When the floppy-eared, brown hound growled, the children laughed with glee.

The clapping stopped short.

Ernest dropped in while you were talking on the phone.

Place your phosphate on the table.

Creepy, crawly creatures went winding around the trees.

He is silently sleeping.

Twelve of them have teeth.

COMMON-KEY EXERCISES

(These exercises are to be used only
after the entire "Cybercode"
has been taught)

COMMON-KEY LETTER COMBINATIONS

The following are letter combinations in which the fingering of the "Cybertype" code changes for only one hand. That is, in typing these letter combinations, the same key is depressed for each letter within a specific group (i. e. Control Key No. 1 is depressed for all combinations within Group A; Control Key No. 2 is depressed for all combinations within Group B, etc.)

Common Left-Hand (Control) Key

Group A	Group B	Group C
eo	sc	uf
et	sh	ub
ot	sl	ug
nt	sm	up
at	ch	gu
it	cl	pu
ai	dr	fu
in	rd	bu
ni		fy
ti		by
to		py
an		gy
te		
en		
on		
no		
tion		

The following is a series of letter combinations in which a common right-hand key is depressed for each group of paired letters (i.e. for "ur," right-hand key No. 1 is depressed for both letters; for "co,", right-hand key No. 5 is depressed, etc.).

Common Right-Hand Key

ur
es
ef
co
ob
oc

th
ph
ng
ln
gl
da

ad
ay
day
im
wi
mi
ix